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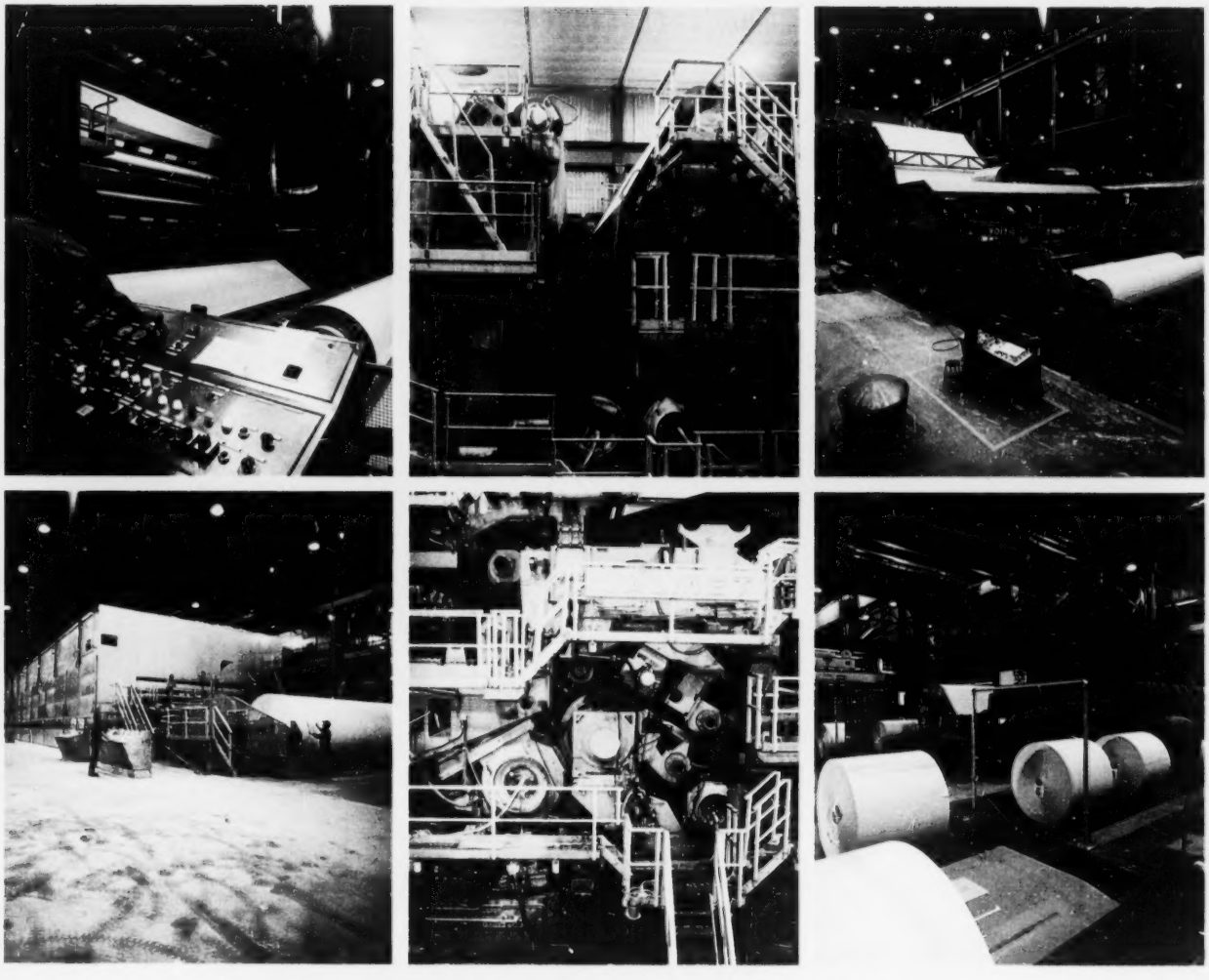
PULP & PAPER

January 1987

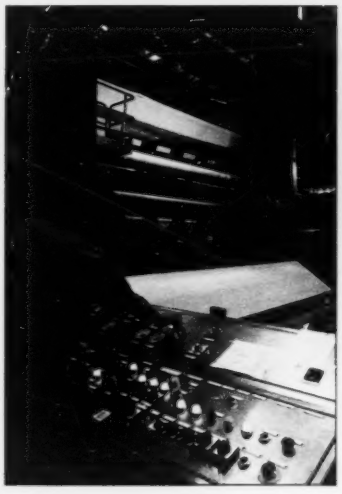


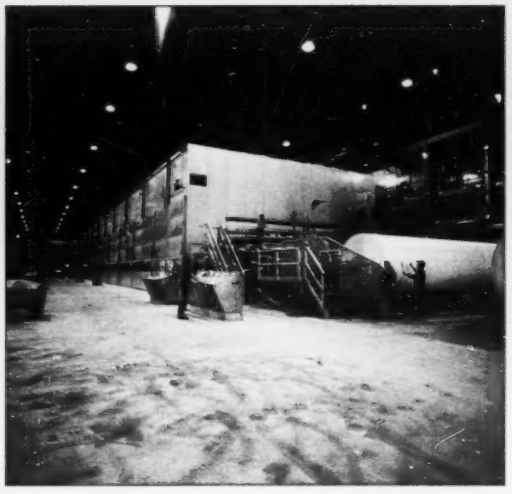
OUTLOOK '87: NORTH AMERICAN PAPER INDUSTRY ECONOMIC RECOVERY EXPECTED TO CONTINUE, BUT AT SLOWER PACE **48**

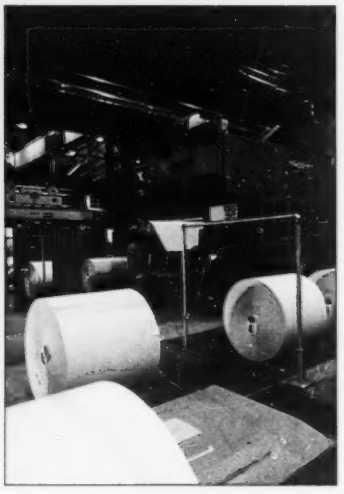
CAPITAL SPENDING: STILL CLIMBING IN CANADA, BUT U.S. COMPANIES PLAN CUTBACKS **109**

Volume 61
Number 1

JANUARY







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(Photographs courtesy Castagne Communications.)

CAPITAL SPENDING

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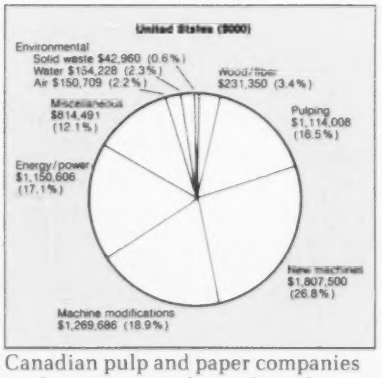

Canadian pulp and paper companies are boosting capital spending plans once again, but in the U.S., companies are cutting back after completing major expansion programs in 1986

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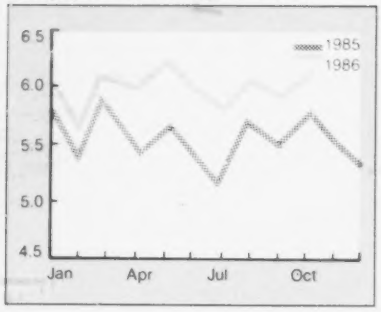
U.S. paper and board production



U.S. production of paper and paperboard jumped to 6.2 million tons in October, up 5.8% compared with a year earlier, according to the American Paper Institute. Factoring in preliminary data for November, the API estimated final 1986 production at a record-breaking 70.6 million tons, or 93.4% of available capacity. That would be 5.3% higher than in 1985, when high inventories and the strong dollar depressed production, and 3.1% higher than in 1984, the previous record year.

Among major grades, record corrugated box shipments and steadily declining inventories helped fuel a resurgence in containerboard output, with kraft paperboard production up 6.8% compared with last year. Other board grades were also strong, and paperboard production overall was expected to reach a record 35.1 million tons for 1986, up 6.2% from 1985 and 3.1% from 1984. Coated and uncoated free-sheet papers led the gains in the paper sector, where production for 1986 was expected to reach 35.5 million tons, up 4.3% from 1985.

Canadian newsprint shipments were up 3.6% in October from a year earlier, while woodpulp shipments jumped 11.8%. Operating rates were 97% for both grades. ■

		Latest month (000 short tons)	% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	Oct.	469	4.5	5,623	3.0
Uncoated groundwood (s)	Oct.	137	−6.8	1,519	0.1
Coated paper (s)	Oct.	569	18.3	6,222	4.6
Uncoated free sheet (s)	Oct.	934	7.2	10,537	8.2
Other printing/writing	Oct.	119	2.6	1,402	4.6
Total packaging and other paper (s)	Oct.	435	−3.5	5,154	−1.9
Tissue	Oct.	446	3.2	5,083	2.8
Total paper	**Oct.**	**3,109**	**5.5**	**35,539**	**3.9**
Unbleached kraft paperboard	Oct.	1,511	7.5	17,647	6.8
Semichemical medium	Oct.	455	1.8	5,372	4.9
Bleached paperboard	Oct.	368	10.5	4,295	8.5
Recycled paperboard	Oct.	719	3.6	8,193	7.1
Total paperboard	**Oct.**	**3,053**	**6.0**	**35,507**	**6.9**
Total U.S. paper and paperboard output	**Oct.**	**6,162**	**5.8**	**71,047**	**5.4**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	Sept.	4,671	5.4	57,108	5.6
Market pulp production	Sept.	624	20.2	7,517	10.7
Wastepaper consumption at paper/board mills	Sept.	1,380	9.0	16,563	8.6
Pulpwood consumption (cords)	Sept.	7,362	6.6	90,905	6.4
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	Oct.	27.132	6.3	239.130[6]	5.7
Containerboard inventories at U.S. box plants and mills	Oct. 1	2,274	−11.2		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	Sept.	931	−5.1	11,510	3.8
Imports of Canadian newsprint	Sept.	655	−8.3	8,312[6]	2.3
U.S. paper exports (including products)	Sept.	390	10.5	4,706	16.9
Exports of unbleached kraft linerboard	Sept.	196	21.7	2,191	20.8
Exports of woodpulp	Sept.	457	53.4	4,523	18.4
Norscan pulp inventories[4]	Oct. 31	902	−40.3		
Norscan pulp operating rates[4]	Oct.	96%	90%	97%	92%
CANADIAN STATISTICS[5] *(reported in metric tons)*					
Total newsprint shipments	Oct.	816	3.6	7,744[6]	4.1
Operating rates	Oct.	97%	92%	93%	92%
Inventories held by U.S. consumers	Oct. 31	1,410	−6.4		
Other paper/board shipments	Oct.	544	7.9	5,038	10.1
Woodpulp shipments (export only)	Oct.	654	11.8	6,433[6]	11.3
Operating rates	Oct	97%	95%	93%	88%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

KRAFT LINERBOARD: Limited expansion should keep the market tight

Grade structure: Unbleached kraft linerboard is made in a wide range of basis weights. Standard weight in the U.S. is 42 lb/1,000 ft², but other important weights are 26 lb, 33 lb, 69 lb, and 90 lb/1,000 ft². Major use is in domestic corrugated container production, although about 13% of the output is exported.

Production: U.S. linerboard production is projected to rise by about 7% to more than 16.2 million tons in 1986 following the previous year's 5.2% decline to 15.2 million tons. Healthy corrugated box demand combined with strong export shipments helped by the declining U.S. dollar were the major factors for this year's rebound.

Corrugated box shipments in 1986 are forecast to be about 5% ahead of their year-ago level and reach a record 280.8 billion ft², reflecting continued strength in consumer spending. Linerboard export shipments are forecast to have risen about 22% to 2.2 million tons following a 12.2% decline to 1.8 million tons in 1985 caused by the strong U.S. dollar.

U.S. linerboard mills ran at 95% of capacity in 1986 (97% adjusted for an idle Jacksonville, Fla., mill). Even with the high operating rates, linerboard mills in 1986 had difficulty keeping up with demand. Containerboard (including corrugating medium) inventories at box plants and mills had dropped to around 2.1 million tons Dec. 1—a decline of more than 450,000 tons since the start of 1986; the lowest level since early 1981.

Capacity trends. In addition to strong demand, slow capacity growth has been responsible for the tight market. Linerboard capacity rose only 2.0% in 1986 and is forecast to increase 1.5% in 1987 and 1.6% in 1988, according to the latest American Paper Institute capacity survey.

Not a single new machine is scheduled for startup, although Willamette Industries Inc. will be converting a corrugating medium machine to production of linerboard at its Albany, Ore., mill in 1987. In addition, the Jacksonville mill, with its 350,000-tpy liner machine, is scheduled to be reactivated under the name Seminole Kraft Corp. in March 1987. It has been idle since the fall of 1985 but not removed from capacity figures.

Some analysts say that a linerboard price of more than $400 is needed to justify a new linerboard mill or machine. Incremental expansion, however, may make actual capacity growth somewhat higher than forecast. A number of mills have indicated plans for adding multi-ply formers, high-pressure presses, and recycled fiber lines.

Future outlook: Slower economic growth in 1987 caused by weakness in consumer and capital spending is expected to result in only about a 2% increase in corrugated box shipments. Linerboard production, however, is expected to rise by close to 3.5%, reflecting stronger growth in export shipments and some inventory building at U.S. box plants.

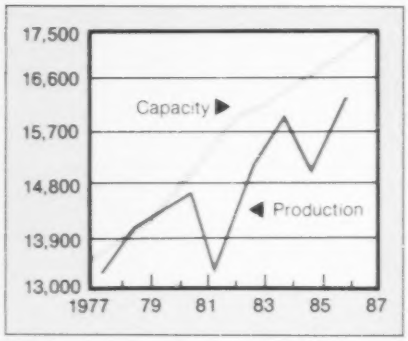
U.S. export shipments are projected to rise about 6% to about 2.3 million tons. Shipments to Europe are expected to decline slightly because of increased use of wastepaper-based test liner. This should be more than offset by higher export shipments in 1987 to the Far East, which last year accounted more than 37% of U.S. linerboard exports compared with about 28% for Europe.

Pricing: The moderate rise in demand combined with slow production growth should result in an operating rate of about 97% for U.S. linerboard producers in 1987. This should be high enough to enable linerboard producers to push through a $30/ton increase to $350 in January—returning prices to their previous peak reached in the third quarter of 1984. Another increase to around $380 is possible in the second half of 1987 or early 1988.

For this to happen, however, corrugated box prices must begin to rise in 1987. Through the third quarter of 1986, box prices had only risen 2.1% from their low point earlier in the year, while linerboard prices had climbed about 28%.

(Historical year-end prices for 42-lb liner delivered in the eastern U.S. open market are as follows: 1986, $320; 1985, $250; 1984, $350; 1983, $290; 1982, $250; 1981, $270.)

SUPPLY/DEMAND (000 tons)



FORECAST (000 tons)

	1985	1986e	1987e
Production	15,183	16,265	16,835
Capacity[1]	15,183	16,265	16,835
Utilization rate	90.7%	95.2%	97.2%
Imports[2]	51	70	75
Exports[2]	1,807	2,190	2,320
Apparent U.S. consumption	13,427	14,145	14,590
lb/capita	112.2	117.1	119.7
GNP ratio	3.74	3.85	3.89

e = Estimate.
1. 1986 American Paper Institute capacity survey
2. Commerce Dept

TOP U.S. PRODUCERS (000 tpy)

	Annual capacity	Market share (%)
1. Stone Container	2,045[1]	11.9
2. International Paper	1,600	9.4
3. Weyerhaeuser	1,350	7.9
4. Union Camp	1,270	7.4
5. Temple-Inland	1,150[2]	6.7
6. Georgia-Pacific	1,120	6.6
7. Jefferson Smurfit	800[3]	4.7
8. GNN	760	4.5
9. PCA	665	3.9
10. Willamette	660	3.9

Market share of top five companies:
43.4%

Market share of top ten companies:
56.9%

Total U.S. capacity (1986):
17.078 million short tons

1. Includes 49% stake in Seminole Kraft mill (350,000-tpy linerboard) scheduled to be reactivated.
2. Included 50% interest in Georgia Kraft Co. and recently acquired Orange, Texas, linerboard mill.
3. Includes 50% interest in recently acquired Container Corp. of America mills.

per Mills Inc. Maine's Dept. of Environmental Protection would not issue a permit for startup because the warm water discharged from the mill would harm brook trout in Little Androscoggin River.

The 70-tpd industrial tissue mill, which was to be called Falls Tissue Inc., has been down for several years. Pejepscot had said it would invest $500,000 to comply with federal pollution control limits but said equipment needed to comply with Maine's DEP standards would have been too costly. ■

LITIGATION

Measurex, Impact patent battle now settled

Measurex Corp. and Impact Systems Inc. settled out of court litigation over a caliper patent. Under the agreement, Impact retains the patent for the Therma-Jet cross-direction caliper control system, granting Measurex a nonexclusive, nontransferable license to make, use, or sell any devices covered under the patent. In return, Impact is guaranteed access to Measurex communication links at reduced fees, to be used with Impact's actuators.

■ The U.S. federal Court of Appeals has upheld a lower court's ruling that **Voith GmbH**'s Flexonip press and Profilroll have not infringed **Beloit Corp.**'s patents covering the company's Extended Nip press. Beloit originally brought the suit against Voith and Chesapeake Corp. when Chesapeake decided to use the Flexonip press at its mill in West Point, Va. ■

EQUIPMENT

Combustion Engineering makes offer for AccuRay

Combustion Engineering Inc. has offered to acquire AccuRay Corp. for $147 million, or $35 per share for AccuRay's 4.2 million shares outstanding. The buyout offer was preceded by a meeting between officers of both companies and is reportedly friendly.

The offer requires that 51% of AccuRay's shares must be tendered. Combustion Engineering has been steadily buying high-technology companies as it divests itself of oil and gas equipment interests. ■

CAPACITY

API forecasts 1.8% annual rise in capacity

U.S. paper and board companies remain conservative about bringing online more capacity in most grades over the next three years, with just 4.2 million short tons to be added during 1987-89 for a 1.8% average annual advance, reported the American Paper Institute's latest annual capacity survey.

The figures toward the end of the survey period could change, however, depending on the performance of the economy and other factors over the next two years, according to API's senior vice president, Norma Pace. About 42% of the planned capacity is to be added in 1987 and smaller amounts will come during 1988-89.

The survey, Pace noted, was conducted during mid-1986, at a time when the industry was uncertain about the effects of tax reform on industry cash flow, as well as a time of concern about market prospects earlier in the year. With the tax bill finally enacted in a form not as tax-burdened as original versions and with earnings on the upswing in the final two quarters of last year, long-term investment plans could change in the coming months.

"The dollar has helped this industry," said Pace, referring to a sharp rise in export acitivity in 1986 and a "cresting" in imports. "It has made it apparent that, with a lower dollar, our competitiveness is good. Just give us a break and we'll show what we can do," she continued. In addition, Pace noted, the industry's output this year in the domestic market has doubled the 2.5% rise in gross national product (GNP).

Newsprint capacity flat. Paper capacity is expected to rise by an average of 2.4% annually during 1987-89 compared with 2.7% per year during 1977-86, while paperboard capacity will increase 1.3% per year compared with 1.6% per year during the preceding ten-year period. Of these grades, newsprint will remain relatively flat, rising by just 109,000 short tons during the period. Capacity for packaging

Growth trends in U.S. capacity (000 short tons) as forecast by API.

	Additions 1977-86		Additions 1987-89	
	10-year increase	Average annual growth	3-year increase	Average annual growth
Total all grades paper & paperboard	**12,110**	**1.7%**	**4,218**	**1.8%**
Total paper & paperboard	14,311	2.1	4,218	1.8
Total paper	8,892	2.7	2,756	2.4
Newsprint	1,845	3.8	109	0.6
Printing/writing	6,469	3.8	2,307	3.5
Packaging & industrial converting	(429)	(0.7)	(63)	(0.4)
Tissue	1,008	2.0	402	2.4
Total paperboard	5,419	1.6	1,462	1.3
Unbleached kraft	3,934	2.4	881	1.6
Solid bleached	540	1.3	104	0.8
Semichemical	770	1.5	126	0.8
Recycled	174	0.2	351	1.3
Construction grades	(2,200)	(6.7)	—	—
Total all grades woodpulp	**9,960**	**1.8%**	**1,643**	**0.9%**
Total woodpulp[1]	10,795	2.0	1,659	0.9
Dissolving & special alpha	(127)	(0.8)	—	—
Sulfite	(712)	(3.4)	(114)	(2.3)
Sulfate & soda*	9,758	2.4	1,324	1.0
Semichemical	223	0.5	(47)	(0.3)
Mechanical	1,653	3.2	496	2.7
Construction paperboard	(835)	(6.1)	(16)	(0.6)

1. Excluding pulp for construction paper and board.
*Includes screenings. ( ) = Decline.

THE U.S. PAPER INDUSTRY RECOVERY EXPECTED TO CONTINUE THROUGH 1987

But gains may be smaller as inventory building slows and overall economic activity remains sluggish; will merger fever begin to cool?

Paper industry profits are expected to continue relatively strong in 1987 as a carryover from 1986, but gains will likely be less dramatic, said analysts, paper company officials, and industry observers responding to *Pulp & Paper*'s annual survey.

"We've got paper and board production up 2% next year, after 5% [in 1986]," said Rodney Young, vice president of Resource Information Systems Inc. "We've got growth starting up again in the last part of 1987 as the economy picks up after a severe slowdown over the next three quarters."

Sherman Chao, an analyst with Salomon Bros. Inc., said the U.S. paper industry should continue to outperform the U.S. economy. "This is because the lower U.S. dollar exchange rate, coupled with modestly higher economic activity, will create sufficient demand to keep operating rates near the mid-90% level," Chao said.

Yet record production volume and operating profits could obscure the continuing, but slowing, dramatic restructuring of ownership, management, and corporate strategy now under way in the paper and forest products industry.

MORE RELUCTANT BRIDES? "Still more reluctant brides are likely to be dragged to the corporate merger altar in the years ahead by unsolicited but determined suitors," claimed Clarence W. Brown, vice president with Shearson Lehman Bros.

Growth in paper and paperboard supply is expected to equal the predicted growth in real gross national product (GNP) between 1.8% and 3.0%, most analysts and industry people agreed. In addition, industry exports are expected to rise faster than imports, gaining 3.1% in 1987, after increasing 5.1% in 1986.

Production of paper and paperboard will continue to advance, about 3% over 1986, said Norma Pace, economist and senior vice president of the American Paper Institute. "Growth in paper production, particularly printing-writing grades, will be paced by improvement in retail sales and in consumer goods production," she said.

The year 1986 was a year of acquisition for many companies as Brown so colorfully pointed out. International Paper Co. bought Hammermill Paper Co., James River Corp. purchased Crown Zellerbach Corp., and Jefferson Smurfit Corp. and Mead Corp. went on spending sprees. The same held true for a number of industry suppliers, such as Harnischfeger Corp.'s purchase of Beloit Corp.

But changes in the 1987 tax regulations probably will cool acquisition fever, said Bruce Kirk of Goldman Sachs. The new tax provisions apply capital gains tax (34%) to the corporation gain and also on the proceeds to shareholders, he explained.

In addition, companies' redepreciation of acquired assets based on revaluation to the purchase price now incur higher taxes. Kirk thinks that higher taxes will drive up the cost of acquisitions, which would take away money from maintenance capital requirements for older, acquired properties.

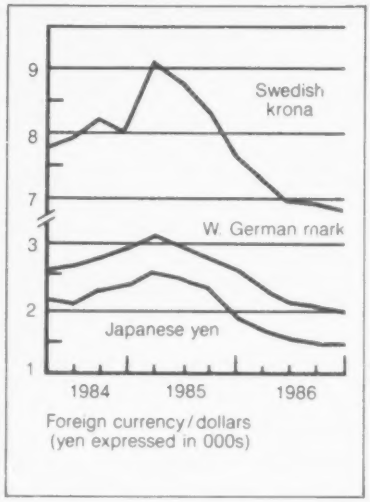
The trend toward expansion probably will mean fewer but stronger (that is, larger) players in the U.S. paper industry, said John B. Fery, chairman and president of Boise Cascade Corp. Though the smaller mills will lose out, Fery believes that the U.S. paper industry will be stronger and more competitive in the world market as a result.

Gary Palmero of Oppenheimer & Co. warned that after 1987 the threat of foreign takeovers of paper companies will be higher. "The U.S. corporate tax rate of 34% in 1988 will be one of the lowest in the industrialized nations," he said.

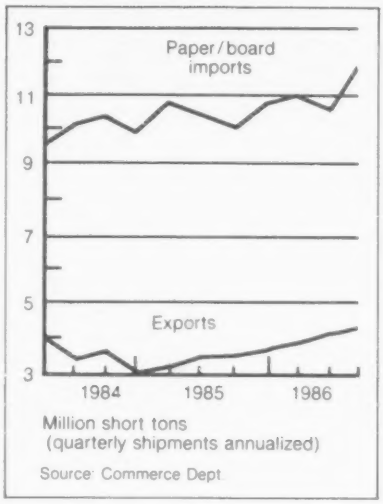
That trend already has started on a smaller scale. Settsu Paper Board Mfg. Co Ltd. purchased a minority interest in Caraustar Industries Inc., as did Mitsubishi in Beloit. And in November, Kanzaki Paper Mfg. Co. acquired Ludlow Corp.'s Specialty Papers Div. plant in Ware, Mass. The Ludlow plant produces thermal printing papers, a segment expected to continue substantial growth.

Outlook '87 was prepared by Pulp & Paper's *news staffers, Debra Adams Garcia, Rob Galin, Karen Swenson, Regina McGrath, and Will Mies.*

The decline of the dollar against other currencies . . .



. . . boosted U.S. paper exports and slowed imports . . .



. . . helping to lift prices in the U.S. market

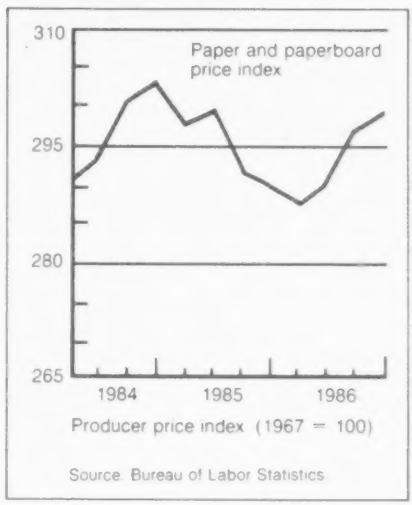


TABLE 1: **Analysts' projections for 1987.**

Percentage change from 1986 levels
(unless otherwise indicated)

	Growth in real GNP	Paper/board production	Operating rates[1] Paper	Operating rates[1] Paperboard	Prices	Costs per unit output[2]	Operating profits Paper	Operating profits Forest products	Housing starts[3]
George Adler Smith Barney	2.4	2.9	93.3	95.7	10[4]	2-3	32	41	1.7
Evadna Lynn Merrill Lynch	1.9	1.9	92.2	92.6	6.2	1.1[5]	34	20	1.7
Mark Rogers Prudential-Bache	0.0	2.3	92.6	94.3	10.1	4.0	34	40	1.8
Lawrence Ross Paine Webber	2.6	3.75	93	94.4	3-4	0	45	38	1.7
Sherman Chao Salomon Brothers	2.0-2.5	2.5-3.0	93	94	12.5	0-2	50	10	1.6-1.7
William Wigder First Boston	2.0	2.9	92	95.5[6]	3-5	3-4	15	25	1.7
Clarence W. Brown Shearson Lehman	2.0	2.0	91.5	93.0	5	2	20	5	1.7
Gary Palmero Oppenheimer	2.4	2.4	92.1	93.5	6.5	0	40	25-30	1.65
Tom Clephane Jeanne Carroll Morgan Stanley	1.8	2.9	93.0	94.5	5-6	2.5	38	n.a.	1.75
Average	2.6	2.6	92.5	94.2	7.0	1.8	34	25.8	1.71

1. Production as percent of capacity. 2. Weighted for full year. 3. Millions of units. 4. Excludes coated. 5. Paper operations. 6. Includes Seminole Kraft.

TABLE 2: **Estimated industry operating rates.**

Paper	Operating rates (%) 1984	1985	1986e	1987e
Newsprint	94.7%	93.8%	96.3%	96.3%
Uncoated groundwood	92.4	87.8	94.3	100.0
Coated paper	97.2	87.9	91.2	90.0
Uncoated frees & bristols	90.8	91.9	95.6	93.6
Thin paper	100.0	84.4	72.5	70.3
Cotton paper	79.5	77.0	79.0	79.4
Unbleached kraft	92.8	87.1	88.8	91.8
Tissue	93.9	92.4	92.1	90.2
Total paper percent change	93.4%	90.5%	93.1%	92.6%
Paperboard				
Linerboard	97.2%	91.1%	95.6%	97.0%
Other	88.1	84.8	90.8	92.0
Total	96.6	90.6	95.2	96.6
Semichemical	98.9	94.0	97.2	98.5
Bleached board	96.9	90.9	94.6	94.6
Recycled	90.3	87.6	90.6	89.4
Total paperboard percent change	95.4%	90.4%	94.3%	94.7%
Total paper and paperboard percent change	**94.4%**	**90.4%**	**93.7%**	**93.7%**

e = Estimates.
Source: Prudential-Bache Securities.

SLOW CAPACITY GROWTH. Expansion also came through modernization and capital spending programs, which added about 1.5 million tons for a total of 75.9 million tons of paper and paperboard capacity in the U.S. in 1986. In 1987, another 1.9 million tons will be added, according to API's new capacity survey.

Expansion is expected to continue along these lines and through renovation of existing equipment. "Capital spending in the industry will continue to be aimed primarily at improving quality and cutting costs," commented Boise Cascade's Fery.

"'Buy,' rather than 'build' will continue to be the the watchword for growth in the industry. The present returns just don't justify the capital expenditure required to build new capacity," Fery said.

The analysts agreed with Fery. It takes about $3 of capital to generate $1 of sales, said Thomas P. Clephane, a principal with Morgan Stanley. "We believe that major expansion projects in most paper grades are not warranted by near-term financial return, particularly with repeal of the investment tax credit," he said.

Pace also agreed. "The effects of tax reform on plant and equipment spending in particular will have to be closely monitored. The change is so large as to create a major uncertainty in the outlook," she said. Pace said unit labor costs will rise only moderately, if at all.

MODERATE ECONOMIC GROWTH. Senior financial executives of major U.S. firms expect the U.S. economy to enjoy at least two more years of moderate economic growth, according to the Conference Board.

Growth in real economic activity will average 2.7% in 1987 and 2.8% in 1988. Neither recession nor inflation were predicted by members of the Conference Board panel.

The overall economy will feature stronger growth than in 1986, with little inventory buildup, and fewer economic fluctuations, said economist Michael K. Evans. The reasons for this include a declining trade deficit and capital spending should increase 3% to 4% in real terms.

But even a high average for the Dow Jones index does not necessarily mean more revenue for the companies, which instead will rely on external sources of money for financing needs.

Real average corporate profits should be about 9% in 1987. In addition, interest rates will move up slightly, with the prime rate moving from 7.8% to 8.2% between 1987 and 1988.

The U.S. dollar may continue to weaken, probably about 7% between the fourth quarter of 1986 and final quarter of 1987, said Evadna Lynn of Merrill Lynch Pierce Fenner & Smith Inc.

The Japanese yen and German mark probably will remain strong against the dollar at 145 to 160 yen to the dollar and 1.85 to 2 marks/dollar, said Chao of Salomon Bros. The Canadian dollar will remain about 72¢ to the U.S. dollar.

MORE PROTECTIONISM? Canada again will be the primary source of imports into the U.S. Pulp and newsprint shipments from the North will increase as domestic U.S. demand rises, said Goldman Sach's Kirk.

All respondents felt that trade frictions will be the most important political question affecting the industry. Heightened protectionist activity could begin to alter trade patterns in 1987, Kirk said. The countervailing duty slapped on Canadian softwood lumber in October could encourage paper and paperboard companies to seek similar measures on what Kirk called "blatant" Canadian paper industry subsidies.

In addition, a dumping challenge may be brought against certain European coated paper exporters to this country. Meanwhile, the European Community late last year was still studying alleged linerboard dumping by U.S. and other foreign suppliers.

The fall of the dollar helped boost exports of U.S. pulp and paper through the third quarter of last year almost 15%. Linerboard exports were posting a 23.4% rise through the third quarter of 1986, probably reflecting some inventory building overseas. Relative exchange rate variations have meant that European and Japanese buyers have not experienced real import price hikes.

MIXED GRADE OUTLOOK. Coated papers and linerboard are expected to be the two most closely watched

areas for the paper industry in 1987. Some grades could see price increases. "I think coated will still be weak," said William Wigder, analyst at First Boston Corp.

"The industry will not have much difficulty in raising prices of newsprint, corrugated boxes, kraft linerboard and bag paper, bleached board, and uncoated white paper (although the uncoated free-sheet environment could deteriorate with higher levels of imports)," said Lawrence Ross of Paine Webber Mitchell Hutchins Inc.

Most analysts hedged on the future of market pulp prices because of uncertainty about exchange rates and about how much of the current strong demand is going into inventory. Longer-run uncertainties for market pulp include capacity additions in developing countries and rapid expansion of chemi-thermomechanical pulp capacity.

UNCOATED FREE SHEET

WILL DEMAND KEEP UP WITH SUPPLY?

■ Uncoated free-sheet grades could benefit this year from continued economic growth or succumb to price pressures if the economy turns sour, analysts said. "I think the uncoated grades will be the grades most sensitive to the economy in 1987," said Mark Rogers of Prudential-Bache. But Rogers was generally optimistic that price increases for uncoated free-sheet grades will go through. Norma Pace, economist with the American Paper Institute, said the outlook for printing/writing papers will depend in large part on consumer spending. "Growth in paper production, particularly printing/writing grades, will be paced by improvement in retail sales and in consumer goods production," Pace said.

Production of uncoated free-sheet should rise about 5.4% in 1987 from last year, API estimated. This is higher than the average increase of all grades of 2.5%.

Even more optimistic than the analysts were industry executives. "Even though the demand might not increase as much, it will increase, and we think prices are going to continue to improve through 1987. Operating rates will be, in the worst case, very good, and in the best case, they'll be outstanding," said Gene Cartledge, chairman, president, and CEO of Union Camp Corp. Operating rates for uncoated free-sheet mills were projected at 91.4% by Gary Palmero of Oppenheimer and at 95% or more by Evadna Lynn of Merrill Lynch.

Cartledge is optimistic for 1987 because of past growth. "This market has grown almost 3 million tons in the last four years, or about 8% a year since 1982. It was at about that rate last year," he said. Even with new capacity, growth at 3% to 4% a year would give the industry an operating rate of 93% to 94%, Cartledge said. If growth matches previous years, operating rates could reach 95% to 96%, he said.

TABLE 3: **Estimated industry production.**

Paper	Production (000 tons) 1984	1985	1986e	1987e
Newsprint	5,539	5,427	5,641	5,700
Uncoated groundwood	1,563	1,502	1,529	1,590
Coated paper	6,227	5,861	6,217	6,700
Uncoated frees & bristols	10,146	10,642	11,498	11,700
Thin paper	338	275	227	220
Cotton paper	140	144	147	150
Unbleached kraft	5,557	5,210	5,129	5,200
Tissue	4,921	4,941	5,073	5,100
Total paper	34,431	34,001	35,461	36,360
Percent change	4.9%	−1.2%	4.3%	2.5%
Paperboard				
Linerboard	16,032	15,242	16,280	16,800
Other	1,147	1,192	1,338	1,365
Total	17,179	16,434	17,618	18,165
Semichemical	5,162	5,084	5,372	5,475
Bleached board	4,059	3,972	4,291	4,350
Recycled	7,858	7,701	8,108	8,200
Total paperboard	34,259	33,190	35,389	36,190
Percent change	7.2%	−3.1%	6.6%	2.3%
Total paper and paperboard	**68,689**	**67,195**	**70,850**	**72,550**
Percent change	**6.0%**	**−2.2%**	**5.4%**	**2.4%**

e = Estimates.
Source: Prudential-Bache Securities

George Treier, principal engineer at Xerox Corp.'s Paper Technology Center, told *Pulp & Paper* there is quite a bit of activity in uncoated free-sheet. "We really see a fair amount of capacity coming on board, but we see increased demand as well. The question is which is going to exceed which." Treier said that in the short term new capacity will create a competitive market for mills. "[But] we're not necessarily tied into having a buyer's market," he said. Over the whole year Treier does predict a slight price increase.

Rogers, in his latest industry quarterly report, estimated that production of uncoated free-sheet and bristol grades will rise to 11.7 million tons in 1987, up about 2%, or 11.4 million tons, in 1986. Imports into the U.S. are expected to fall almost 18%, though domestic demand will be up about 1%. Exports, Rogers said, should be up about 21%, but they represent a very small fraction of paper production.

Groundwood papers are not likely to make much of a dent in sales of free-sheet grades for reprographic and computer printouts for the next few years, at least, Treier said. In fact, there is a trend toward more expensive rag bonds for archival use in some sectors, he said. Groundwoods could be made that eventually would find a niche among free-sheets, but the cost of technology could be high and added free-sheet capacity will help deter such activity for the time being, Treier suggested.

On the technical side the trend toward greater automation will continue in the areas of cross direction, al-

kaline sizing, and reducing paper variability. However, Treier said there is not likely to be a trend toward a greater number of types of paper available. Improvements will include resistance to contamination, better surface strength, and improved copy quality, Treier said. But costs of paper will not go up because of these technological changes, and in fact they may go down as they reduce papermaking costs in some areas. For example, cross-directional control and uniformity will help reduce the amount of waste and rejected paper. Alkaline sizing also has the potential for cost reductions, Treier said.

COATED PAPER

NEW CAPACITY WILL MAKE 1987 DIFFICULT

■ Though most paper grades are looking at a stable, if not profitable year, analysts generally expect coated papers to continue their slump, and maybe even lose some ground in pricing.

Prices for coated groundwoods began firming in the second half of 1986, and two-month backlogs were reported on offset grades. One paper company even announced a price hike of $40/ton for better grades beginning Jan. 1, 1987.

Still, "the one grade with mediocre near-term prospects is coated papers," said John B. Fery, chairman and CEO of Boise Cascade Corp. "With additional capacity due in 1987, supply will continue to outpace demand."

Analysts put it more pessimistically: "We believe that a best-case forecast for coated paper is that there is no further erosion from current levels, which are down approximately 12% from late 1985 peak levels," said Thomas P. Clephane of Morgan Stanley & Co. Inc.

"I remain skeptical of the outlook for coated papers for the next couple of years," said Mark Rogers of Prudential-Bache. Added George Adler of Smith Barney: "I think coated No. 5 will go down another notch in early '87." Gary Palmero of Oppenheimer went even further by suggesting that LWC grades that were selling for around $720/ton in the last quarter of 1986 could fall to $660/ton.

Clephane believes coated mills will have an average operating rate of 89% because of the plentiful paper supply. An 85% operating rate was projected by Evadna Lynn of Merrill Lynch.

However, Rodney Young of Resource Information Systems Inc. was slightly more optimistic about coated papers. "Coated papers will do very well after the 1985 debacle and average 7% growth in the period 1986 to 1988, but prices will remain relatively flat from the fourth quarter of '86 through 1987," he said.

While prices of coated magazine grades will fall, premium grades—Nos. 1 and 2—are expected to rise and middle grades—Nos. 3 and 4—could go either way, said Lawrence Ross of Paine Webber.

This pessimism comes at a time of rising demand, at least for coated groundwood papers. Use of lightweight coated grades could rise almost 5% a year through 1995, according to a study by Jaakko Pöyry Group of Helsinki, Finland, in cooperation with Walker Wiener Associates U.S., and Walker Watson Associates, U.K.

Most of those supplies will come from domestic producers, with only about 3.4% coming from other countries, an analyst said.

A majority of publishers are keeping paper inventories of 31 to 60 days, with more than 26% keeping 61-90-day inventories. The rest have a supply for a month or less.

FIVE NEW MACHINES. Coated papers could benefit in 1987 from increased use by magazine publishers. A survey by the Magazine Publishers Assn. revealed that publishers expected paper use to rise 3.7% in 1987 from its 1986 level, following a 2.1% rise in 1986 from the year before.

Coated groundwoods will remain the dominant coated grades used by publishers. It will account for over 70% of coated paper used in 1986 and 1987.

But a recent report by the Publishers Information Bureau said magazine advertising pages continued to fall, posting a 1.4% decrease for the first ten months of 1986 as compared with the same period a year earlier. That downward trend did slow in October, but analysts suggested that probably was due to Christmas season advertising. (Ad revenues grew during that same period because of rate hikes.)

However, lightweight coated papers and supercalendered grades will face a new challenge by an in-between grade of pigmented paper that does not have the gloss of LWC, but it has greater opacity than SC. Finnish mills are leading the way on this new paper.

The biggest problem for the U.S. coated paper market are new machines which started up last year—but which will be making their full impact felt in 1987. These include new coated groundwood machines started up by Bowater Inc., Consolidated Papers Inc. and International Paper Co. and a new coated free-sheet machine started up by Scott Paper Co. totaling nearly 800,000 tons.

TABLE 4: **Average paper prices, uncoated papers.**

	1984	1985	1986	1987
1Q	760	688	664	700
2Q	764	688	671	740
3Q	751	682	687	740
4Q	717	662	700	740
Average	748	680	681	730
% change	10	−9	—	7

Source: Prudential-Bache Securities.

In addition, Repap Enterprises Ltd. last year started up a new 200,000-tpy machine in Canada, and the company will be targeting a good portion of the machine's output at the U.S. market.

TISSUE

PRICES SHOULD IMPROVE

■ While it is unclear whether producers will get behind a price hike, cut back on promotional programs, or narrow discounts, U.S. tissue producers may finally be successful in raising prices for consumer tissue this year. "With pulp prices increasing, there certainly is an impetus for some form of a price increase," noted analyst Jeanne K. Carroll of Morgan Stanley & Co.

Little new consumer tissue capacity is expected to come onstream this year. Most of the new capacity in 1987 will be in the commercial and industrial segment of the tissue market, and C&I producers have already covered themselves by implementing a 5% price increase last fall.

In April Fort Howard Paper Co. will start up the first of four recycled tissue machines at its $1-billion Savannah River mill in Rincon, Ga. No. 16 will have capacity for 250 tpd, most of which will end up in the C&I segment. In the fall Georgia-Pacific Corp. plans to retire an old machine by starting up a new one at its Palatka, Fla., mill, increasing capacity by about 100 tpd. This new production will be split between consumer and C&I areas. American Tissue Co. plans to convert Diamond International Corp.'s idle molded pulp mill into an integrated tissue mill late this year.

Demand has been good. Tissue production through September was running at a 5.064-million-tpy rate, up 2.48% from 1985, according to the American Paper Institute. Tissue imports through August were up 14.75% from the year-earlier period at an annualized rate of 64,250 tons.

OVERCAPACITY IN 1988? Tissue producers may have to worry about overcapacity down the road, observed Smith Barney, Harris Upham & Co. analyst George Adler. Fort Howard, the largest U.S. C&I tissue producer, is in the process of more than doubling tissue output by 1993. According to analyst Jeanne Carroll, the company is adding about 665,000 tons of capacity during the 1983-93 period, which she estimates is about two thirds of the total tissue market's anticipated growth.

James River Corp., a leader in the consumer segment, announced late last year that it was planning to start up three tissue machines in the next five years. It is believed that not all of them will represent new capacity since some older machines will probably be idled. This comes on top of the startup last year of a 70,000-tpy tissue machine at the company's Naheola, Ala., mill.

The overall tissue industry operating rate has been flat: 92.4% in 1985 and about 92.2% last year. U.S. tissue capacity is expected to grow about 2.6% in 1987, 2.5% in 1988, and 2.0% in 1989, according to the API's recent capacity survey. This works out to an average annual growth rate of 2.36% for 1987-99, representing an additional 402,000 short tons of capacity, not including James River's new machines.

TABLE 5: **Average paper prices, coated papers.**

	1984	1985	1986	1987
1Q	910	1,030	1,000	970
2Q	934	1,030	970	970
3Q	970	1,030	970	970
4Q	970	1,030	970	970
Average	946	1,030	978	970
% change	15	9	−5	−1

Source: Prudential-Bache Securities.

CONTAINERBOARD

TIGHT SUPPLY AND RISING PRICES

■ Most forecasters look for further growth in U.S. corrugated box shipments in 1987, which should result in tight supply and additional increases in containerboard prices.

Roger W. Stone, chairman and CEO of Stone Container Corp., told a recent meeting of the Assn. of Independent Corrugated Converters that he expected corrugated box shipments to increase just under 5% to 280 billion ft² in 1986 and then rise another 3.5% in 1987 to 290 billion ft². Norma Pace, senior vice president of the American Paper Institute, at the same meeting projected a 6.1% increase to 283.7 billion ft² in 1986 and a further 3.3% rise in 1987 to 293 billion ft².

Not all forecasts are as optimistic. William Copeland of Copeland Economics told the Second International Unbleached Kraft Conference, sponsored by *Pulp & Paper*, that he expects a 1.8% decline in corrugated box shipments in 1987 because of slower economic growth in the second half.

While most forecasts envision 2% to 3% growth in corrugated box shipments, containerboard capacity will grow at a much slower rate. Linerboard capacity is expected to grow at only a 1.2% average annual rate over the 1986-89 period, according to one recent API survey. If kraft paper is included with linerboard—both grades are produced on some swing machines in the industry—the rate of growth comes down to 0.7%/year, Roger Stone noted.

WHERE WILL SUPPLY COME FROM? The question for 1987 may be: how will U.S. containerboard mills keep

up with demand? Additional supply cannot come out of inventories since stocks at the end of 1986 were at rock-bottom levels after a record two-year liquidation. Some improvement, however, is possible in industry operating rates, which averaged in the mid-90% range in 1986. And some additional capacity will be entering the market from the reactivation of the 490,000-tpy Jacksonville, Fla., liner/kraft paper mill by this coming March.

Some pullback in export markets is possible in 1987 because of slower economic growth, inventory building by some offshore buyers last year, and competition from recycled board. "Linerboard exports will be hampered by the lack of increased demand from Japan and the lower (30% to 40%) cost of test linerboard in Germany, two key markets for linerboard," noted Evadna S. Lynn of Merrill Lynch.

But even with some improvement in production and less robust export demand, U.S. linerboard mills may have to struggle to keep up with demand. Linerboard prices in the eastern U.S. last year climbed from about $250/ton at the beginning of the year to $320 in the fall. Another increase to $350 has been announced for early 1987. Mark S. Rogers of Prudential-Bache projects that prices could rise to $380 by this fall "before a final increase to well over $400/ton occurs some time in 1988."

If this is going to come about, the industry will have to do a better job of raising corrugated box prices this year than last. Through the third quarter of last year, corrugated box prices had risen only about 2% as measured by Fibre Box Assn.'s index, while linerboard prices had climbed 26%.

POOR RISK/REWARD. Such an improvement in pricing is needed by the industry to justify major new capacity expansion. Not a single new linerboard mill has been built in the U.S. since 1980 due to unfavorable return on investment. "No right-thinking businessman would spend the money necessary to bring in significant additional capacity unless he believed that the price for linerboard would achieve $450/ton, three years from the time the decision was made to build, and would have the probability of remaining at that level for some protracted period of time," Stone said.

Rather than build new capacity, containerboard producers have been buying each other in a major industry restructuring. "It is still far cheaper to buy good capacity in place than it is to built it, according to Stone.

Recent examples include the Jefferson Smurfit Corp.-Morgan Stanley acquisition of Container Corp. of America, the Pomerantz-Hayford investment group's acquisition of Gaylord Container Corp., Stone Container's acquisition of effective control of Jacksonville Kraft Paper Co., and Great Southern Paper Co.'s partial integration through the purchase of J&J Corrugated Box Corp.

The merger and acquisition fever may result in a stronger industry with fewer decision makers—but it has done nothing to add to supply.

BOXBOARD

FLAT BUT FIRM MARKETS

■ Boxboard producers ended 1986 on a good note, with prices up from a year earlier and another increase on bleached board posted by two major producers for January. With capacity increases expected to be minimal over the next three years and demand projected to remain relatively good in 1987, markets should remain at least as good as in 1986.

Demand for bleached board was strong in 1986, with the first three quarters showing an 8.4% advance over a year earlier. This was caused in part by a surge in export orders as the dollar rose in comparison to other currencies through the year. But that situation could change in 1987 if the dollar falls off significantly.

Recycled board markets were not as strong. However, producers were able to get prices up $20 to $30/short ton during the fall after a failed attempt earlier in the year. Prices for 20-pt clay-coated recycled board in rolls began the year at $350/400 and by year-end stood at $380/420. The change in 20-pt bending chipboard in rolls during that time was from $300 in January to $320 by December.

Recycled mills did well, though, despite the market's dependency on domestic demand because recycled products are not a significant export item. Through the first nine months of the year compared with a year earlier, production was up 7.3%, though production for export was down 8%. This compares with bleached board production for export rising by 10.2%.

SBS HIKE POSTED FOR JANUARY. Bleached board producers fared far better than recycled manufacturers on the pricing front also. They were able to get prices up twice. A $30/ton increase posted in April in the East brought transaction levels up to $570/600. In the West, prices went up in May to $600/650. Another increase of $30 to $40/ton in July boosted prices further to $570/625 in the East, while West Coast prices stabilized.

On top of these increases, Westvaco Corp. and Federal Paper Board Co. Inc. both plan another jump in January of about 4%.

Bleached board capacity is expected to grow just 0.8% annually through 1989, while recycled board capacity will increase 1.3% per year during the same period. As recently as late 1985, market observers felt recycled board markets would strengthen due to a lack of expansion through 1988 and bleached board markets were expected to languish because of a 3.1% annual jump in capacity during 1986-88, according to the American Paper Institute's 1985 survey. But the situation is now reversed. SBS supplies are expected to be tight in 1987.

Recycled board producers, on the other hand, have had more to contend with than lagging prices. Profits have also been hurt by sharply higher wastepaper

prices. Costs escalated substantially during the past year, but producers were unable to get compensation from sufficient price improvement and will be trying to raise levels in 1987.

OUTLOOK VARIES AMONG END-USES. The outlook within the recycled board market should vary somewhat in 1987, though the overall forecast calls for a relatively flat year. Demand for gypsum wallboard facings should remain good, though down somewhat from the past two years when construction activity was high. Demand this year is expected to be level or down slightly from 1986 due to much of the pent-up demand for housing and commercial space having been met for some time to come. Many areas now have excess capacity in multifamily housing and office space.

Test linerboard and recycled corrugating medium demand should remain relatively strong, provided the dollar does not weaken sufficiently to curtail export demand for virgin board. Folding carton demand, which is the largest end-use for recycled board, should continue to lose market share from competitive materials. The market share loss should not be significant in 1987, however, with recycled board prices expected to remain significantly below competitive products as bleached board and solid unbleached board.

JUICE, OTHER USES HELPING CARTONS. In bleached board, milk carton demand should be relatively strong. The erosion in markets caused by plastics over the past 15 years appears to have slowed considerably in recent years. Containerboard producers have found alternate markets, such as with juice manufacturers and in other uses, such as water and oil containers, which have made up for a significant portion of the loss.

The most promising market for bleached board, however, appears to be in the aseptic area. International Paper Co., though, so far has been the only U.S. producer to compete in that market as a supplier of aseptic board. The majority of the packaging material is imported from Scandinavia and Fed. Rep. Germany and converted in the U.S. That situation could change as early as in this year, though, as more food manufacturers begin to devise ways to apply the board to their products.

Plate and cup stock consumption should remain steady in 1987. Consolidation of the disposable cup industry with purchases in 1986 by James River Corp. and Fort Howard Paper Co., however, could cause some interesting competitive moves this year.

TABLE 6: **Corrugated box prices have been lagging containerboard increases.**

	Eastern U.S. price 42-lb linerboard[1] ($/short ton)	Average U.S. corrugated box price[2] ($/1,000 ft²)
1986		
3Q	$310/320	$38.54
2Q	280/290	38.00
1Q	250/260	37.73
1985		
4Q	250	38.14
3Q	250	38.86
2Q	275	41.35
1Q	310	42.56
1984		
4Q	320/350	42.60
3Q	320	40.82
2Q	320	40.87
1Q	290/320	38.62
Peak to valley drop (1984-85)	−25.4%	−11.4%
Valley to present rise (1985-86)	+26.0	+2.1

1. Source: *Pulp & Paper Week*. 2. Source: Fibre Box Assn. index.

WASTEPAPER

MORE STABLE PRICES EXPECTED

■ Wastepaper markets picked up substantially in 1986, with prices more than doubling for some grades in some parts of the country, as well as for export tonnage. Exports again broke the record set in 1985, while demand from domestic mills through the first eight months was 8.6% above prior year levels due in part to a sharp rise in linerboard production.

In addition, pulp prices increased three or four times during the year.

Whether or not paperstock will repeat this performance in 1987 is uncertain. But most market observers expect demand to be at least flat or slightly higher than in 1986. The dollar is not expected to rise enough to cause any significant erosion in export demand. But forecasts call for a 3% advance in the U.S. economy in 1987, according to the Conference Board's forum of 14 top U.S. analysts. This should keep a lid on prices through much of the year.

Problems incurred by paperstock dealers and buyers in recent years with laser printing and hotmelt glues will continue to plague the market. Mills are expected to continue to reduce consumption of grades containing these contaminants, and this should especially affect such grades as computer printout.

Meanwhile, state and local governments continue to threaten recyclable paper supplies as waste-to-energy plants multiply. The industry, however, will remain committed to lobbying efforts to ensure private enterprise's access to adequate supplies from the solid waste stream.

A number of mill projects in the East are likely to firm markets there. Fort Howard Paper Co. is said to be gearing up for the startup of a tissue paper machine at its Rincon, Ga., mill in 1987, which would require ledger

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grades. Also, Chesapeake Corp. is scheduled to restart the converted No. 1 paper machine at its West Point, Va., mill late in 1987. It will produce recycled corrugating medium and use old corrugated containers (OCC) and some double-lined kraft (DLK).

PACIFIC RIM WILL BE KEY AREA. In the West, the big pull for paperstock should come from the Pacific Rim countries, market observers indicated. One broker expects total U.S. paperstock exports will advance by 3% to 4%.

Through the first three quarters of 1986, exports were up 12.9% over a year earlier. Rep. Korea and Taiwan should draw a good portion of overseas demand. India's consumption should continue to grow and Indonesia should advance some in the coming year.

Canada will be relying more on paperstock from the U.S. as the gap between domestic supply and demand continues to widen. In addition, Europe is expected to come out of its slump and will be ready to buy paperstock again soon.

Third-quarter prices for paperstock in Europe fell sharply from the second quarter. In France and Fed. Rep. Germany, a turnaround was seen unlikely until 1987. To exacerbate the situation, Italy was buying supplies from the U.S. instead of France, while Fed. Rep. Germany was shipping to north and east France. In the U.K., sources said prices stopped falling in the third quarter, although lower grades were still available at distressed prices.

In the U.S., meanwhile, paperstock markets were beginning to show signs of weakness in November. Prices for such key grades as computer printout (CPO) and new DLK corrugated clippings were dropping. Old corrugated containers and No. 1 news were also weak. One dealer in the Northeast said CPO fell $30 late in November. OCC and old news each were down $10 to $15. DLK dropped about $10.

In all cases, prices weaknesses were caused by oversupplies as mills cut back on orders to trim inventories for the normal year-end slowdowns.

UNCERTAIN SIGNS TOWARD YEAR-END. The decline was so sudden and so sharp that dealers were unsure if markets had turned down for the long-term or were just experiencing the normal year-end glitch. One broker, though, said when paperstock markets rise as rapidly as in 1986, they fall as fast.

But the pulp substitute grades were holding up in November despite their significant climbs during most of the preceding ten months. A pulp price increase announced by some producers for Jan. 1 was said to be helping.

Observers noted that if pulp prices continue to advance in 1987, pulp substitutes will follow. This, in turn, would boost levels for other grades as mills search for cheaper alternatives in a market of rising prices.

CANADIAN INDUSTRY

STRONG MARKETS SHOULD BOOST PRICES, OPERATING RATES, COMPANY PROFITS

Rising protectionism, intensified competition in global markets and changing government sentiment toward industry should cause some concern for Canadian pulp and paper mills this year. Markets, however, look more favorable in 1987, following an upturn in 1986.

The decline of the Canadian dollar in relation to European currencies boosted demand from overseas buyers for Canadian products, although the U.S. dollar declined at about the same time, keeping the exchange rate between the two countries on about a par with 1985. The drop in Canadian currency, though, was timely for the market in general as it occurred when pulp prices began to firm early in 1986 due to increased demand and production curtailments.

A lengthy strike in British Columbia by the International Woodworkers of America caused some slight production problems at mills there in the third and fourth quarters but did not depress industry profits. In fact, margins improved in the third quarter from a year earlier for many companies and the fourth quarter was expected to show about the same results.

In eastern Canada, paper and forest products companies generally improved their performances in the third quarter of 1986 from the previous quarter and from a year earlier by as much as 61%. The strong earnings performance was attributed to the increase in pulp prices, improved operating rates for newsprint, better prices for most paper grades, and the weak Canadian dollar.

COMPANY EARNINGS TO ESCALATE. Earnings of most eastern pulp and paper companies are expected to double in 1987 and post more moderate gains in 1988, according to Brian Topp of Capital Group Securities Ltd. He noted that the threat of strikes in the eastern region, where negotiations are focused this year, should keep markets strong.

The IWA strike in British Columbia, which began in mid-July and continued well into the fourth quarter, surprised industry observers as it came on the heels of a prior settlement with the industry's Canadian Paperworkers Union and Pulp, Paper & Woodworkers of Canada unions, which was reached quickly and without any labor disruptions.

The trend, though, has been toward moderation in labor demands. Industry, on the other hand, has been able to win more concessions in such areas as work rules and statutory downtime. Settlements more favorable to industry are expected to follow again in 1987, although an upturn in markets could raise union expections early in the year.

Low mortgage rates in the U.S. and Canada kept the wood products industry operating at a good pace in 1986, although there was some slowdown later in the year as pent-up demand for housing seemed to have slowed. Housing starts are expected to be about flat in 1987 from 1986 in the U.S. However, a 15% duty imposed on Canadian softwood lumber imports into the U.S. will somewhat curtail demand for Canadian lumber.

The Canadian industry called the duty unjustified but U.S. counterparts felt Canadian producers had been unfairly subsidized in most provinces. A final decision on the amount of the tariff was to be determined by Dec. 30. Meanwhile, the dispute could thwart efforts at reaching a free trade agreement between the two countries. It is doubtful that U.S. protectionist sentiments will die out yet this year as worldwide competitiveness remains keen. Others fear a trade war between the two countries may occur.

TRADE WITH U.S. IMPORTANT. The portion of secondary fiber used at Canadian mills continued to escalate in 1986, causing them to have to look outside for supplies and rely more on the U.S. During the first half of the year, Canadian mills used 12% more recyclable paper than a year earlier, according to the Canadian Pulp & Paper Assn. Of that total, 500,000 tons had to be imported from the U.S.

Like their U.S. counterparts, Canadian pulp and paper companies underwent a considerable amount of reorganization in the past year. Perhaps the biggest move was made by the Quebec government, which announced it would divest its interests in Donohue Inc. and Domtar Inc. Bidders were being reviewed and an initial announcement was expected by late in the year.

Another key movement toward reorganizing the industry centered on British Columbia Resource Investment Corp.'s decision to get out of the pulp business. In June, it sold its Prince Rupert, B.C., pulp mill to Repap Enterprises, and in September it sold its Castlegar, B.C., pulp mill to a consortium consisting of Canada's Power Corp., Consolidated-Bathurst Ltd., and People's Rep. China.

The sale of the two BCRI mills also reflected a trend toward investment by foreign companies and those out-

side the region, as well as the continued expansion of entrepreneurs such as George Petty of Repap. Others that have emerged in recent years include Dan Alexander of St. Marys Paper Inc., and the Lemaire family of Cascades Inc.

CONSOLIDATION TO CONTINUE. The industry is expected to continue its consolidation into the hands of fewer owners. Meanwhile, larger companies will be pooling their resources into more capital expenditures to improve their competitive position. And older equipment will be replaced with more advanced models.

The Canadian government, however, will probably remain tightfisted with its money for subsidizing any improvements, acquisitions, and greenfield mill projects. Funding is being given less frequently, and when it is it's usually in the form of participatory loans rather than outright grants.

This government policy was the result of protests from within the industry itself. Additional capacity was being brought online—a considerable portion of it funded by government grants—at a time when markets could not absorb it. With markets improving, however, government sentiment could change in 1987.

NEWSPRINT

DEMAND, PRICES UP; CAPACITY FLAT

■ North American newsprint producers should have a good year in 1987. Prices are expected to move up by as much as $65/metric ton. North American capacity should rise only about 1%, and U.S. consumption will be up an estimated 2.5%. This should bring mill operating rates to about 95% this year and more than 97% by 1989.

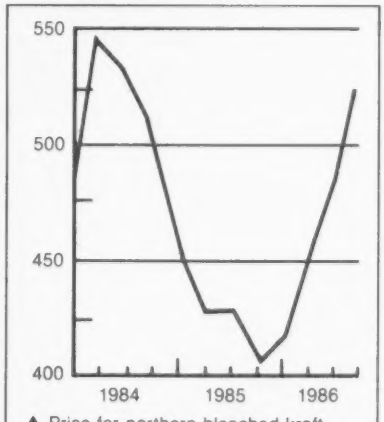
The market will be starting out the year with a price increase announced for Oct. 1 by most producers, but posted for Jan. 1 by Champion International Corp. and Kimberly-Clark Corp. This $35/ton hike to $570 was partially implemented at the beginning of the last quarter of 1986 but was not expected to take full effect until early in 1987.

This would be the first price increase for the industry in more than two years. The last hike, to $535, was posted for July 1984, but it took until later in the year to be fully implemented. Then markets began to erode again in 1985 and steep discounting set in late in the year and continued through much of the first half 1986.

But by June it became apparent the market was turning around for the long-term, and North American producers began to line up behind an attempt to raise prices on Oct. 1. Most major producers—except Champion and K-C—announced by Aug. 1. By Oct. 1 markets had firmed sufficiently to implement the increase for some contract orders, but a large amount of tonnage was still being discounted from list prices. At the time, the transaction price rose to $500/570 from $500/535 in the East and $483/570 from $483/535 in the West.

The price increase had received support not only from Champion and K-C both announcing identical hikes for Jan. 1 just prior to the Oct. 1 date, but also from continued increases in newsprint demand through the summer months. By the end of the first nine months, total U.S. consumption was up 3.5% from a year earlier, according to the American Newspaper Publishers Assn. U.S. production was up somewhat higher than Canadian output: 2.8% compared with 2.1%.

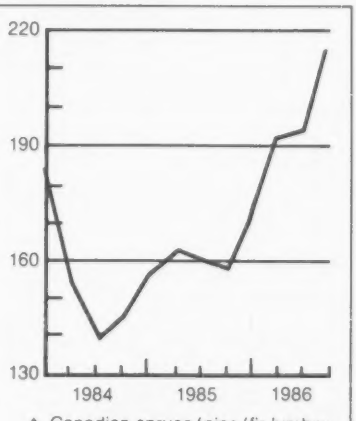
The upsurge in market pulp prices . . .



▲ Price for northern bleached kraft pulp delivered in U.S. ($/metric ton)

Source: *P & P Week.*

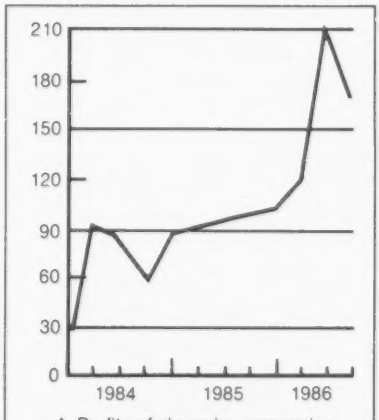
. . . plus steady firming in lumber prices . . .



▲ Canadian spruce/pine/fir lumber in U.S. ($/000 bd ft)

Source: *Random Lengths.*

. . . have revived profits of Canadian companies



▲ Profits of six major companies: Abitibi, BCFP,Canfor, Con-Bath, Domtar, MacBlo (C$ millions)

WESTERN REGIONS TO REBOUND FIRST. The U.S. and Canadian western regions are likely to experience the greatest firming this year and were already strong in the second half of 1986 due to various factors. In addition to a strike in the third quarter at the Port Alberni, B.C., mill of MacMillan Bloedel Ltd., a lockout at Tasman Pulp & Paper Ltd.'s New Zealand mill at about the same time caused tonnage from Crown Forest Industries Ltd.'s Campbell River, B.C., mill to be diverted offshore to Tasman's markets. Later in the quarter, the North Pacific Paper Corp. mill in Longview, Wash., was directed to increase shipments to Japan.

But by the fourth quarter, spot tonnage at depressed prices was becoming increasingly more difficult to find even in the East. Newsprint producers reported order backlogs at the end of October were out through year-end. Yet some publishers continued to get price protection through December and beyond in some cases. Newsprint prices are expected to firm closer to the $570 list by January, but larger buyers will continue to get concessions.

Industry analysts expect that the discounts, however, will be reduced significantly by the first quarter of 1987, and they will continue to narrow through the remainder of the year. Jeanne K. Carroll of Morgan Stanley, New York, projects a narrowing in the discounting to 5% if the price increase takes effect, as expected, in January. She forecasts a further reduction in discounts to 3.5% and another $30/ton price increase in January 1988.

ANOTHER PRICE INCREASE POSSIBLE. Brian Topp of Capital Group Securities Ltd., Toronto, is more optimistic about the newsprint market's comeback in 1987. He expects the Oct. 1 increase will be firmly in place by early 1987 and another $30/ton hike should be posted as early as April.

Topp notes that with consumption expected to rise while capacity stays relatively flat, it will be a seller's market again in 1987. In addition, the spring timing is appropriate because labor contract negotiations involving most eastern Canadian mills are expected to start at that time (see related article).

George B. Adler of Smith Barney, New York, expects newsprint production will increase in 1987 by 1.8% to 5.125 million tons, and operating rates should reach 96.6%. Carroll forecasts newsprint output at U.S. mills in 1987 will be 5.04 million tons and the operating rate will be 95%.

A consensus of forecasters call for U.S. newsprint consumption to rise about 2.5% in 1986, 2.8% in 1987, and 2.5% in 1988. At the same time, mill operating rates should rise to 92% in 1986, 94.5% in 1987, 96% in 1988, and 97.5% in 1989.

Despite projections for better markets in 1987, U.S. producers will continue to experience market share erosion in North America from overseas competitors. Should the dollar remain strong, the competition will be less severe but is likely to continue to make inroads at a moderate rate. Should the dollar drop in relation to other currencies, however, more significant erosion could occur.

Through the first three quarters of 1986, U.S. newsprint supplies from sources outside Canada and the U.S. amounted to 254,725 tons, up 7.4% from a year earlier. This amount accounted for 2.9% of total U.S. consumption compared with 2.8% in 1985.

For the long-term, newsprint markets should be strong through the rest of the decade. In addition to no significant capacity additions planned for North America through the 1980s, new product innovations and a growing share of nonnewspaper end-use applications should result in a 2%/year growth in standard newsprint usage, according to a recently completed report by Jaakko Pöyry International Oy of Helsinki, Finland.

UNCOATED GROUNDWOOD

NEW LWC CAPACITY MAY BE A PROBLEM

■ Uncoated groundwoods are expected to see a favorable, though less than ecstatic, year, analysts and papermakers say. "On balance it should be a reasonably good year, depending on newsprint pricing," said Jim Rowland of Canadian Paper Analyst.

Pricing in general will be up marginally, but there will be a price squeeze on lightweight coated (LWC) grades which could put pressure on nearby uncoated grades, Rowland said. Yet word came at the end of 1986 that prices would rise, based on similar actions in free-sheet grades earlier in the last quarter of 1986. Last December Abitibi-Price Inc. announced an across-the-board, $40/ton price hike for its groundwood forms grade papers, the same as some free-sheet hikes.

Canada will increase production and also shipments into the U.S. Rowland suggested that about 80% of Canadian uncoated groundwood shipments go to the U.S., with 10% staying in Canada and another 10% going offshore.

Market size in 1986 was about 3.5 million metric tons for all grades: supercalendered (SC), roto news, directory, lightweight catalog, and softcover book news, said Warren Woodworth, senior vice president for marketing at CIP Inc.

Through 1990 growth will average about 3% annually, with SC growth faster than machine-finished grades, according to CIP estimates. The tonnage volume for SC is a fairly large segment of the total and is related to retail sales, Woodworth said. "We're coming into an overall market condition with supply and demand very much more in balance than has been the case," he added.

However, Canadian mill officials will be looking over their shoulders by 1988 when a new high-end 250,000-tpy SC machine at Lake Superior Paper Industries in Du-

luth, Minn., comes online. LSPI is owned by Pentair Inc. and Minnesota Power. There also will be competition from Scandinavian clay-filled WSOP supercalendered paper, produced under license by Abitibi at its 59,000-tpy Kenogami mill in Jonquiere, Que.

There has been an ongoing, but slow, process of paper machine conversions in Canada. Abitibi is converting its Alma, Que., mill's newsprint machine to 47,000 tpy of lightweight catalog and directory paper. St. Marys still is planning on installing a new 156,000-tpy SC machine at Sault Ste. Marie, Ont. And CIP is expanding in SC production at Trois Rivières, Que., by 110 tpd.

The industry also will see an ongoing change in product mix. There also is potential for ownership changes at Donohue Inc. and British Columbia Forest Products Ltd.

Some U.S. retailers and publishers are buying more and more paper in Canada, printing their inserts there, and then shipping the completed jobs to the U.S. for distribution in direct mail and newspaper insert campaigns. For instance, K-Mart buys from 10% to 20% of its paper in Canada. This is because SC stock is harder to come by in the U.S., a K-Mart spokeswoman said. Magazines and supermarket tabloids are following a similar pattern. Canadian paper is cheaper and printing is done on state-of-the-art equipment. U.S. customers pay Canadian market prices, which are not at the U.S. equivalent, but lower, a source said.

Overall prices will depend on what happens to newsprint pricing, said CIP's Woodworth. He predicted 1987 will probably be good for groundwood specialties because newsprint consumption in 1986 was running 3% ahead of 1985, even with one less Sunday last year. In addition, Canadian groundwood mills are starting to see better sales offshore, especially in western Europe.

In specific segment areas, CIP predicts growth in the preprint area at 7%-plus annually, 10%-plus for business forms, and 10%-plus in heatset offset printing paper, said Colin Russell, CIP's manager for market planning in newsprint and pulp.

Woodworth said in the decade ahead papermakers will be looking at ways of extending raw material, electricity, wood, and even people. For instance, CIP is producing more paper with fewer people, having dropped the number of employees from 16,000 to 12,000. Papermakers will have to work on improving quality and answering customers' needs, Woodworth said.

MARKET PULP

WHEN WILL THE PARTY END?

■ The pulp market underwent a dramatic recovery in 1986 that few in the industry would have predicted just a year ago.

U.S. and Canadian market pulp mills by last fall were running full out (except for a few mills affected by the British Columbia woodworkers strike). North American and Scandinavian producer inventories of chemical paper-grade market pulp had dropped to a rock-bottom level of only 900,000 metric tons. And pulp prices rose each quarter, with the price of benchmark northern bleached softwood kraft rising from about $390/metric ton at the end of 1985 to $520 in the fourth quarter—for about a 33% increase. Already producers were in the process of announcing another increase for Jan. 1 which should take the price to about $550 to $560/ton.

HELP FROM THE DOLLAR. Will the party continue? Ross Hay-Roe of *PaperTree Letter* points out that most pulp market upcycles since the 1950s have lasted for six to eight quarters, suggesting that the current upturn may have a bit further to go. No doubt some customer inventory building is taking place, with U.S. and Canadian market pulp shipments for the first nine months up nearly 10%. Most of this inventory building has probably been in overseas markets. (The only available statistics on consumer stocks are for the U.S. and show only a moderate increase.)

A major factor affecting the strength of the market will be the value of the dollar in relation to other currencies. The declining dollar took most of the pain out of last year's price increases for buyers in Europe and Japan and increased the cost competitiveness of North American producers vs those in Scandinavia.

Although the dollar price of pulp has increased 33%, customers in Fed. Rep. Germany have experienced only a 16% increase in terms of their currency, while buyers in Japan have had only about a 9% rise, Hay-Roe noted. The decline of the dollar has also put increased cost pressure on Scandinavian mills—and in the case of Swedish mills caused them to hold back on production.

FLAT CAPACITY GROWTH. One factor which should help the pulp market in 1987 is that North American

TABLE 7: **Market pulp producers experienced a dramatic recovery in 1986.**

	North American/Scandinavian Inventories (000 metric tons)	Operating rates (%)	U.S. market price ($/metric ton)
1986			
3Q	920	94	$480
2Q	960	90	450
1Q	1,133	90	410
1985			
4Q	1,298	88	400
3Q	1,397	85	400/425
2Q	1,449	84	425
1Q	1,762	89	450
1984			
4Q		96	510
3Q	1,309	93	530
2Q	1,040	92	540
1Q	914	82	480

1. Producer inventories of chemical paper-grade market pulp at end of quarter.

Source: *Pulp & Paper Week.*

and Scandinavian chemical paper-grade market pulp capacity will be virtually flat for the next two years. No major new chemical paper-grade market pulp mills are planned in the Norscan countries because of recent poor profitability. However, world chemical paper-grade market pulp capacity is expected to rise at about a 1%/year rate in 1986-87 because of a somewhat higher rate of expansion growth in other parts of the world.

Even if demand for chemical paper-grade market pulp remains flat in 1987—as some industry forecasters have projected—operating rates for North American and Scandinavian mills would remain at about the same healthy 95% to 96% rate they were at last year, up from 89% in 1985.

The longer-run outlook for Norscan chemical paper-grade market pulp producers is less bright. Eucalyptus pulp has been growing in popularity, and producers in Brazil and the Iberian peninsula are studying major capacity additions. In Brazil alone, more than 1.5 million tons of capacity could be added by the early 1990s, according to Claes G. Hall, commercial director of Aracruz Celulose SA.

LONG-RUN CHALLENGES. Nontraditional producing countries are now the world's lowest cost supply regions because of low wood and labor costs and weak currencies. Aracruz last year pegged its manufacturing cost at $160/metric ton (excluding financial cost and delivery).

Another challenge for North American chemical paper-grade market pulp mills will be coming from rapid expansion of chemi-thermomechanical pulp. Four new CTMP mills started up or are planned in Canada in the 1986-88 period. The projects by Tembec Inc., Cascades Inc., Fibreco Export Inc. and Millar Western Industries Ltd. could add 600,000 tpy of market CTMP. And Consolidated-Bathurst Ltd. last year began marketing about 80,000 of bleached CTMP in North America formerly shipped to a newsprint mill in England.

A third problem facing market pulp producers is the growing use of superabsorbents in baby diapers. This could cause the roughly 1.0-million-tpy U.S. fluff pulp market—once pulpmakers' fastest growing major market segment—to level off or even decline. As a result, more U.S. and Canadian market pulp capacity could be integrated into papermaking in the future.

LABOR

NEW BARGAINING WILL AIR OLD ISSUES

The stage is set in upcoming U.S. labor negotiations for a repeat focus on the issues that were most evident during the 1986 round of bargaining. According to American Paper Institute estimates, approximately 113 mills will be negotiating new labor agreements in 1987. A shift in regional concentration will occur, with the West Coast and the Midwest now showing the heaviest levels of activity.

Labor's concerns have been influenced since the early 1980s by the recessionary economic environment, which has forced paper companies to look for ways to trim costs to remain competitive. For the union worker, this has meant contracts that have included the addition of flexible work rules, cost-containment medical programs, elimination of premium pay scales, and the unrestricting of holidays.

Richard P. Klinzing, vice president of employee relations for the American Paper Institute, terms these recent negotiations: periods of "corrective bargaining." He feels that many of the work practices and restrictions that were part of the paper industry's collective bargaining process during the past 20 years have been modified or eliminated and expects that this mode will continue.

In addition, he said, mills must deal with increased competition from countries such as Brazil, with low labor costs that U.S. mills are unable to match. This means that U.S. paper companies will have to move away from focusing on wage issues. Although, in his opinion, easily identifiable monetary items will still be scrutinized, companies will have to branch out in other directions such as instituting "team concept" work rules to gain a competitive edge.

He feels that companies will continue to focus negotiations on this goal of increased flexibility with the expected end result being increases in productivity. This move toward a concentration on other than monetary issues, in his view, is and will continue to be one of the most important parts of the negotiation process.

UNION VIEWS ISSUES. Members of the United Paperworkers International Union (UPIU) see many of the issues that are part of the current bargaining practice as management's attempts to take back items that were won in past negotiation efforts.

Gordon Brehm, executive assistant to the UPIU president, agrees that items such as medical costs, flexibility, and premium pay will continue to be issues. He feels, however, that in the case of medical benefits, for instance, companies have shifted costs to the worker rather than opt for containment policies such as mandatory second opinions.

He feels that flexible work rules will continue to be

TABLE 8: **Major contracts by region on 1987 U.S. paper industry bargaining calendar.**

Company	Mill location	Union	No. of employees	Contract expires
Pacific region				
Southwest Forest Ind.	Snowflake, Ariz.	U	425	2/28
Boise Cascade	Wallula, Wash.	W	391	3/14
Weyerhaeuser	Cosmopolis, Wash.	W	280	3/14
Weyerhaeuser	Springfield, Ore.	W	391	3/14
Weyerhaeuser	Everett, Wash.	W	189	3/14
Weyerhaeuser	Longview, Wash.	W	976	3/14
Weyerhaeuser	North Bend, Ore.	W	146	3/14
Boise Cascade	St. Helens, Ore.	W	474	3/14
Boise Cascade	Vancouver, Wash.	W	293	3/14
Grays Harbor	Hoquiam, Wash.	W	269	3/15
International Paper	Gardiner, Ore.	W	229	3/14
ITT Rayonier	Hoquiam, Wash.	W	265	3/15
ITT Rayonier	Port Angeles, Wash.	W	360	3/15
Georgia-Pacific	Bellingham, Wash. (Pulp & Chem.)	W	363	4/30
Georgia-Pacific	Bellingham, Wash. (Tissue)	W	331	4/30
Georgia-Pacific	Toledo, Ore.	W	432	4/30
Simpson Paper	Ripon, Calif.	W	149	4/30
Boise Cascade	Steilacoom, Wash.	W	177	5/31
Champion	Missoula, Mont.	U	740	5/31
James River	Antioch, Calif.	W	167	5/31
Longview Fibre	Longview, Wash.	W	1,418	5/31
Packaging Co. of Calif.	Red Bluff, Calif.	W	240	5/31
Scott Paper	Everett, Wash.	W	1,045	5/31
James River[1]	West Linn, Ore.	W	507	5/30
Potlatch Corp. (Consumer Products)	Lewiston, Idaho	U	360	6/30
(Pulp & Paperboard)	Lewiston, Idaho	U	665	6/30
Keyes Fibre	Sacramento, Calif.	U	225	9/11
Louisiana-Pacific[2]	Antioch, Calif.	U	273	10/29
New England region				
Champion	Bucksport, Maine	U,A,B,O	1,033	5/1
S.D. Warren Co.	Westbrook, Maine	U[3],A,B,O	1,262	5/31
Haverhill Paperboard	Haverhill, Mass.	U	139	6/1
International Paper	Jay, Maine	U,O	1,204	6/1
James River	Berlin, N.H.	U	1,246	6/24
Georgia-Pacific	Gilman, Vt.	U	180	7/1
James River	Hyde Park, Mass.	U	165	7/1
Federal Paper Board	Versailles, Conn.	U	184	7/10
James River	Fitchburg, Mass.	U	34	7/31
		O	419	8/9
Boise Cascade	Brattleboro, Vt.	U	149	8/31
Georgia-Pacific	Woodland, Maine	U,A,B,O	521	8/31
Madison Paper	Madison, Maine	A	289	9/15
James River	Old Towne, Maine	U	759	9/30
Fraser Paper	Madawaska, Maine	U,O	914	11/1
Midwest region				
Niagara of Wisconsin	Niagara, Wis.	U,O	502	1/31
Consolidated Packaging	Fort Madison, Iowa	U	221	7/31
Consolidated Papers (Stevens Point Div.)	Stevens Point, Wis.	U,A,B,O	194	4/30
(Wis. River Div.)	Stevens Point, Wis.	U	470	4,30
(Biron Div.)	Wis. Rapids, Wis.	U,A,B,O	656	4/30
(Kraft Div.)	Wis. Rapids, Wis.	U,A,B,O	286	4/30
(Wis. Rapids Div.)	Wis. Rapids, Wis.	U,A,B,O	1,156	4/30
Georgia-Pacific	Kalamazoo, Mich.	U,O	312	4/30
Gilbert Paper	Menasha, Wis.	U	275	4/30
Crystal Tissue	Middletown, Ohio	U	253	5/1
Scott Paper	Marinette, Wis.	U	729	5/14
Scott Paper	Oconto Falls, Mich.	U	157	5/30
Nicolet Paper	DePere, Wis.	U	366	5/31
Dunn Paper	Port Huron, Mich.	U	192	6/1
Packaging Corp.	Rittman, Ohio	U	263	6/1
Jefferson Smurfit	Middletown, Ohio	U	130	6/1
Menasha Corp.	Otsego, Mich.	U,O	176	6/13
Mosinee Paper	Mosinee, Wis.	U	456	6/30
Fletcher Paper	Alpena, Mich.	U	157	6/30
Stone Container	Coshocton, Ohio	O	217	7/1
Pope & Talbot	Eau Claire, Wis.	U	366	7/14
Inland Container	Newport, Ind.	U	93	7/14
Pope & Talbot	Ladysmith, Wis.	O	163	7/31
Stone Container	Ontonagon, Mich.	U	221	7/31
Beckett Paper	Hamilton, Ohio	U	387	9/28
Gaylord Container	Baltimore, Ohio	U	84	9/30
Packaging Corp.	Tama, Iowa	U	72	10/2
Sorg Paper Co.	Middletown, Ohio	U	414	11/1
Midtec Paper	Kimberly, Wis.	O	1,000	11/30
Southern region				
International Paper	Mobile, Ala.	U,B	1,264	1/31
International Paper	Moss Point, Miss.	U,B	881	3/31
Westvaco	Covington, Va.	B		3/1
Westvaco	Luke, Md.	B		3/1
James River	Richmond, Va.	U	213	4/28
ITT Rayonier	Jesup, Ga.	U,A,B,O	909	6/30
Bowater Southern	Calhoun, Tenn.	U,B	1,157	7/2
Federal Paper Board	Augusta, Ga.	U,B	722	8/14
Champion	Canton, N.C.	U	1,613	8/31
International Paper	Pine Bluff, Ark.	U,B	858	9/1
Georgia-Pacific	Monticello, Miss.	U	375	9/30
James River	St. Francisville, La.	U	737	10/22
Eastern region				
P.H. Glatfelter	Spring Grove, Pa.	U	845	1/19
Manning Paper	Troy, N.Y.	U,A,B,O	156	3/31
Riegal Products	Hughesville, N.J.	U,B	53	5/30
Riegal Products (James River)	Milford, N.J.	U,B	380	5/30
	Warren Glen, N.J.	U,B	161	5/30
Lyons Falls	Lyons Falls, N.Y.	U	227	6/1
Hammermill Paper	Lock Haven, Pa.	U	740	6/20
James River	Carthage, N.Y.	U	328	6/30
Scott Paper	Chester, Pa.	U	1,300	9/27
Garden State Paper	Garfield, N.J.	U	192	9/30
International Paper	Corinth, N.Y.	U	484	9/30
Georgia-Pacific	Plattsburgh, N.Y.	U	504	10/1
Appleton Papers	Roaring Springs, Pa.	U	401	11/17

Legend: U = United Paperworkers International Union; W = Assn. of Western Pulp & Paper Workers; A = International Assn. of Machinists & Aerospace Workers; B = International Brotherhood of Electrical Workers; O = Others.

1. Reopener possible. 2. Reopener. 3. Settled Nov. 9, 1986.

Source: American Paper Institute Employee Relations Dept.

an issue but says that the majority of mills where this concept has been a problem have had these contract changes added in recent years. In his opinion, though, further changes will have to be made before a truly workable system is arrived at.

He stated that in recent years, paper companies have been able to take advantage of unions weakened by declining membership and an antiunion political climate. In the past, companies insisted on seven-day work weeks, and firms were willing to pay workers for serving on these extra shifts. He feels that there is "no economic justification" for many of the companies' recent demands.

LUMP SUM SETTLEMENTS THE RULE. In a trend that seems destined to remain a part of industry bargaining, API statistics show that over three-quarters of the labor contracts negotiated during 1986 contained lump sum payments to workers in the first year in lieu of general wage increases.

In most cases, increases were deferred until the second or third year of the contract term. This, of course, is more beneficial for companies in maintaining a lower wage base and also in reducing the multiplier effect on benefits and pensions in any existing year.

The effect that these lump sum bonuses had on the wage increase percentage for the past year is readily apparent. Through the first of November, according to API statistics, the annual percentage wage increase for 1986 was 0.3%, compared with 2.1% for the whole of 1985.

POWER OF STRIKES REDUCED. In a recently issued report, the Conference Board expects that unemployment will remain unchanged from current levels in 1987, holding at a rate of 7%. This high unemployment, along with other related economic factors, has made it more difficult for unions to benefit from staging a strike.

Companies are thus finding it easier to hire temporary or in some cases permanent replacements and are able to run mills with these new hires and salaried employees to help lessen the impact of a strike. And in the case of several strikes during 1986, most notably at Boise Cascade Corp.'s Rumford, Maine, mill, striking workers finally returned to their jobs after accepting contracts that differed little from the companies' final offers.

CANADIAN BARGAINING SHIFTS TO EAST. The largest number of Canadian mills negotiating new labor contracts in 1987 will be in the eastern half of the country. The Canadian Pulp & Paper Assn. (CPPA) calendar shows that a large percentage of the existing contracts will expire on Apr. 30.

As in the past, according to industry officials, the pattern of bargaining will be set using one target company as a "model." James Buchanan, president of the Canadian Paperworkers Union (CPU), stated that negotiations will begin in earnest after the CPU's National Wage Policy Conference in mid-January. At this conference, he said, the union will set some bargaining strategy.

According to Buchanan, the number one concern for Canadian union members during negotiations this year will be maintaining their job security in the face of continued technological change and modernization programs. Flexible work rules will also be an issue, as it was during the bargaining in British Columbia in 1986. He said in Canada, though, the flexibility issue becomes a question of mill operating time rather than a disposition of the work force as it is in the U.S.

He also expressed concern about the ongoing strike activity by the International Woodworkers of America (IWA) in British Columbia over the issue of contracting out work at those mills. He felt that the outcome of that situation could have repercussions on what the CPU will be faced with as bargaining begins in the East.

Buchanan said that an issue outside the regular bargaining activity will be the subject of pension plans. In 1982, the union met with Abitibi-Price and agreed on a separate settlement governing pensions. This agreement expired this past fall. Preliminary discussions had again begun with Abitibi when the company asked to break off talks in expectation of the passage of country-wide government reforms which would have an effect on pensions. Buchanan expected that this new legislation could pass and become law as of Jan. 1, 1987.

MANDATE GIVEN TO EXPLORE MERGER. In another development that will have a profound effect on future bargaining activity, Buchanan said that the CPU executive board was given the go-ahead by delegates at a September convention to explore the feasibility of merging with another union. A similar proposal had been rejected by union membership in 1982.

Buchanan termed the merger proposal, "a move to survive," in the face of reduced membership caused by technological change and the rising administrative costs necessary to maintain services. He said that the IWA had received a similar mandate from its members. These mandates, he said, have opened the door for preliminary discussions that will continue through the end of 1987.

When asked what had been the most significant change that had occurred since the last round of talks in 1984, he said that it was an improvement in the Canadian paper industry. This has resulted in an increased profitability for the companies as evidenced by the recent rise in the price of newsprint which has been accepted in the marketplace. It is, he explained, a "better arena now" for bargaining.

And on another positive note, Buchanan noted that the modernization that has occurred in Canadian mills has enabled a reduced workforce to produce more tonnage. Rather than signifying a loss for the union, the reduction in workers may bring about an improved situation for a smaller number of workers who will share in the subsequently increased profits. ■

WILL STRONG TREND CONTINUE TOWARD PRECISION SHEETING FOR FOLIO SIZES?

Record 1985 folio sheeter purchases were a bubble, based on recent trends, but survey indicates strong momentum during next five years

By JOE RADOMSKI

The year 1985 was undoubtedly the biggest in history for the purchase of precision folio sheeters in North America, with an estimated 16 precision folio sheeters bought by U.S. and Canadian fine and coated paper producers. What happened to change the rate of acquisition from the six per year of the late 1970s? Will the new high rate of purchase continue, or was this a bubble caused by a delay in purchasing in the lean years of the early 1980s (Table 1)? Is this the beginning of a major conversion from guillotine trimming to precision sheeting of folio sizes, or will market saturation begin to set in?

To attempt to gain some insight into the future, a tabulation was made of all fine and coated paper industry sheeting locations in the U.S. and Canada to determine how many of what kind of folio sheeters they have (to the best of the author's knowledge). Then an estimate was made of what each mill might purchase by the end of 1991.

In a total count of 91 paper mills and 24 converting plants which produce folio sheets, there were at the end of 1985 in operation or purchased an estimated 81 precision folio sheeters. This figure estimate includes both first and second generation precision folio sheeters. In these same locations, a total of 223 guillotine trimmers are still in operation today.

Next, an estimate was made of the potential for converting from trimming to folio sheeting at each location. Each estimate is, of course, a judgment call, with an effort at rational judgment being made through consideration of a uniform set of factors. These considerations included what was known about (1) the amount of trimmed tonnage, (2) the skid versus carton packaging, (3) the potential economic justification, (4) the availability of funding, (5) the long-range plans for the location, (6) the current viewpoint of the plant toward folio sheeting, and (7) the current corporate viewpoint.

In taking a look at economic justification it was also necessary to make a judgment of what kind of sheeter(s) would be the best fit: small (two-pocket, four-roll) or larger, and with continuous carton discharge or skids only.

Is this the beginning of a major conversion from guillotine trimming to precision sheeting of folio sizes, or will market saturation begin to set in?

CARTONS VERSUS SKIDS. It should be noted that precision folio sheeting began with continuous carton discharge. Then came a transition to skid discharge with offline carton lines as required. At this time, the paper industry is purchasing about 80% of its sheeters with carton packaging facilities for the three reasons noted below:

1. Large volume skid orders continue to be shifted to rolls with the advent of smaller web presses.
2. The increase in small (26 in. × 40 in. maximum) sheetfed presses, running short-run, high-quality jobs, appears to be causing carton orders to grow faster than overall demand.
3. Automatic cartoning machines improve the economic justification if the sheeter is large and sufficient volume exists.

POTENTIAL FOR REBUILDS. The estimate of how many new sheeters will be bought is made more difficult by the potential that exists for rebuilding existing sheeters. Included are those with cutting sections adequate in cut quality and accuracy but limited in speed, downtime, or quality by their delivery or unwind systems. These conditions

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were taken into account in the estimate by making a judgment as to which plants might rebuild existing equipment.

Two such rebuilds were recorded in the last two years, and undoubtedly more will occur. Rebuilds were not included in the new machine count in either previous year statistics or the five-year forecast.

After all the judgment calls were made, location by location, totals were calculated in each category and then 15% added to each to allow for growth in overall paper demand in the next five years.

PURCHASE RATE INCREASE. As a result, in the years 1987-91, the industry is expected to purchase folio sheeters at the rate of eight per year, an increase of 33% over the rate of the late 1970s. At the end of 1991, this would still leave 153 guillotines in operation. A five-year breakdown on the kinds of sheeters expected to be bought is shown in Table 2.

The 16 new folio sheeters bought in 1985 did constitute a bubble; it compensated for the few bought in the previous four years. At the half point in 1986, it appeared that the year would wind up with about 10 to 12 folio sheeters purchased, and probably fewer will be bought in 1987-88 as the current industry expansion tapers off.

It is interesting to note that a substantial portion of sheeters purchased in the next five years is projected to be of the "small" variety, as tonnage in small mills and residual tonnage in large mills is converted from trimming. Also, carton sheeters are expected to predominate primarily in the early years.

Since there are seven sheeter manufacturers competing in this market, competition can be expected to be fierce. This alone might make the figures presented here a bit conservative since price reductions will improve economic justification.

PRECISION SHEETING TRENDS TO CONTINUE. Conversion from trimming to precision sheeting will continue. The economics justify it. It was once estimated that as little as 20 to 25 tpd from a precision sheeter would provide an attractive payoff for the smallest sheeter now available on the market. As the trend continues, trimming will be reduced further toward the base level of customer preference and it will become necessary to produce odd or larger sheet sizes and orders too small to produce economically on an expensive precision folio sheeting system.

Indeed, as the trimmed tonnage gets smaller and the conversion cycle approaches its limits, the purchases of large high-speed folio sheeting systems will approach the lower limit in expansion of demand.

TABLE 1: **Estimated folio sheeter sales by size and type.**

	1982	1983	1984	1985	1986
Large skid			1	3	1
Large carton	1		3	7	6
Small skid		1		6	
Small carton			1		
Total	**1**	**1**	**5**	**16**	**7**

TABLE 2: **Types of sheeters purchased 1987-91.**

	Skid	Carton	Total
Large	6	17	23
Small	9	9	18
Total	15	26	41

ACCURACY OF ESTIMATES. How accurate are these estimates? The guess here is ±15% in total, maybe ±50% in any given year. The numbers are inescapable: finite locations, known tonnages, and stable and limited expansion rates result in a smaller and smaller market. The error could be in how fast the conversion occurs or on how close to 100% the conversion will get or on which kind of machines are purchased. Further, the author is handicapped with less than 100% accurate data on the industry since there are no accurate, published data currently.

But with only 90-odd locations, these errors tend to be self-correcting as the years pass — for example, more sooner; fewer later. This estimate has assumed that in the next five years, no major technological breakthroughs will occur that will change the economic factors markedly in either direction. There could be a robot to operate the trimmer, or a low-cost sheeter that will run one-roll orders without stopping, or a web press to run small orders more economically than today's 26 in. x 40 in. sheetfed presses. This means that no replacement of the current generation of folio sheeters has been projected. Perhaps ten years from now this will be in evidence.

The 16 new folio sheeters bought in 1985 did constitute a bubble; it compensated for the few bought in the previous four years.

One final thought: If you disagree with these numbers, do the same estimate, starting with a detailed count of locations, and see what you come up with. The author believes the methodology is sound, and welcomes your response to discuss how we differ. ■

CAPITAL SPENDING SURVEY: 1986-88

Canadian spending climbs once again, but U.S. companies are cutting back after completing some major expansion programs in 1986

By CARL ESPE, News Editor

Despite prospects for a continued rebound in sales and earnings this year, U.S. paper companies are cutting back sharply on their capital spending plans, according to *Pulp & Paper*'s annual survey of capital spending plans. Major factors in the cutbacks are uncertainties about the economy and new tax laws and the completion of a number of major spending programs in 1986. In Canada, meanwhile, pulp and paper companies are taking advantage of improved financial fortunes to boost capital spending for the third straight year.

P&P's latest survey, conducted in October and November, covers spending plans for the three-year period from 1986 to 1988. Reported capital outlays for the 1986-88 period total $6.71 billion in the U.S., down 18.8% from the $8.26 billion reported in last year's survey. In Canada, however, spending plans total C$4.40 billion for the 1986-88 period, up 7.3% from $4.10 billion last year.

Conflicting reports on U.S. plans. Capital spending won't top the $9-billion mark in 1986, but it will surpass the 1985 total, according to the Commerce Dept.'s Bureau of Economic Analysis. The BEA's most recent survey, conducted in July and August, showed paper companies shaving their spending plans back to $8.87 billion for 1986—still a new record but down 2.5% from the $9.1 billion reported earlier in the year. Capital expenditures of $8.87 billion would represent a 3.2% increase over 1985 spending of $8.59 billion.

In contrast to the Commerce report, McGraw-Hill Economics drastically reduced its estimate of 1986 U.S. paper industry capital spending in its recent fall 1986 survey of investment plans. According to the study, which was conducted in September and October, pulp and paper industry spending will plunge to $7.86 billion in 1986, a drop of 8.4% from 1985. The 1986 decline will be followed by a further decrease of 24.1% in 1987, to $5.97 billion, before a slight recovery of 2.0% in 1988 to $6.09 billion. The study is based on returns from pulp and paper companies representing 24.1% of the industry's capital spending, McGraw-Hill said. Overall, the study's forecasts total a 3.5% decline in U.S. business capital spending in 1986, followed by an increase of only 0.4% in 1987.

The fall survey results are in sharp contrast to McGraw-Hill's spring survey, conducted last March and April. In the earlier study, paper industry spending was to hit $9.20 billion in 1986—14.6% higher than the current forecast. The spring survey showed spending slowing to $8.15 billion in 1987 and $7.35 billion in 1988.

The economy is now in its fourth year of recovery, while real GNP has been mired below 3% growth for the past two years, said McGraw-Hill in explaining the pessimistic survey results. Despite the decline in the U.S. dollar, the trade deficit is still widening, and U.S. indus-

TEN-YEAR CAPITAL SPENDING TRENDS

YEAR	U.S. TOTAL		CANADA TOTAL	
1986e	$8,870	3.3%	C$2,161	16.7%
1985	8,590	19.1	1,851	57.7
1984	7,210	21.8	1,174	17.5
1983	5,920	−0.8	999	−29.7
1982	5,970	−11.2	1,420	−15.3
1981	6,720	−1.2	1,676	61.0
1980	6,800	22.5	1,041	51.9
1979	5,550	39.1	685	33.6
1978	3,990	10.8	513	−1.6
1977	3,600	15.8	521	6.4

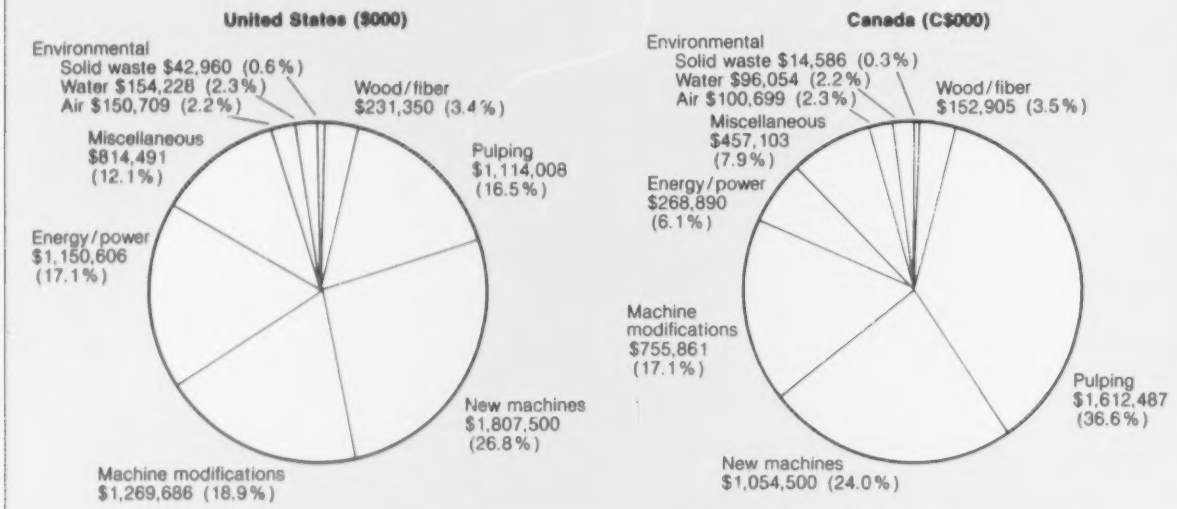
Source: Commerce Dept.; Statistics Canada.

TEN-YEAR U.S. ENVIRONMENTAL SPENDING TRENDS

YEAR	AIR		WATER		SOLID WASTE	
1986e	$211	27.1%	$160	−27.3%	$197	7.1%
1985	166	—	220	−162.8	184	327.9
1984	166	12.2	86	−44.2	43	−54.7
1983	148	55.8	154	25.2	95	30.1
1982	95	−42.4	123	−3.9	73	1,116.7
1981	165	−18.3	128	−29.7	6	−89.9
1980	202	6.9	182	23.8	59	−25.3
1979	189	27.7	147	−0.7	79	1,875.0
1978	148	−20.0	148	−31.5	4	−92.3
1977	185	−25.4	216	−46.5	52	−55.6

Source: Commerce Dept.; McGraw-Hill Economics; environmental spending totals are not available for Canada.

FIGURE 1: **Reported spending by type of facility, 1986-87 +.**



U.S.—REPORTED CAPITAL EXPENDITURES FOR 1986-88+ BY REGION AND TYPE OF FACILITY ($000)

PRODUCTION-RELATED EXPENDITURES

	WOOD/FIBER		PULPING		NEW MACHINES		MACHINE MOD.		ENERGY		MISC./PLANT	
New England	$ —	0%	$ 20,000	2%	$ 175,000	10%	$ 87,200	7%	$ 259,800	23%	$ 140,031	17%
Mid-Atlantic	275	0%	34,028	3%	—	0%	28,396	2%	149,685	13%	44,464	6%
East North Central	15,250	7%	72,308	7%	177,000	10%	653,408	52%	27,661	2%	116,808	14%
West North Central	20,000	9%	80,000	7%	217,500	12%	40	0%	50,000	4%	20,000	3%
South Atlantic	126,375	55%	433,150	39%	755,000	42%	271,522	21%	579,150	50%	240,922	30%
East South Central	51,700	22%	152,200	14%	210,000	12%	102,500	8%	45,200	4%	70,000	9%
West South Central	6,750	3%	169,000	15%	273,000	15%	58,000	5%	36,500	3%	71,319	9%
Mountain/Pacific	11,000	5%	153,322	14%	—	0	43,620	3%	2,610	0%	110,947	14%
Total	**$231,350**		**$1,114,008**		**$1,807,500**		**$1,269,686**		**$ 1,150,606**		**$ 814,491**	

ENVIRONMENTAL QUALITY SPENDING — **TOTALS**

	WATER		AIR		SOLID WASTE		PRODUCTION		ENVIRONMENTAL		GRAND TOTAL	
New England	$ 4,000	3%	$ 1,300	1%	$ 3,200	7%	$ 682,031	11%	$ 8,500	2%	$ 690,531	10%
Mid-Atlantic	1,900	1%	—	0%	—	0%	256,848	4%	1,900	1%	258,748	4%
East North Central	12,023	8%	14,349	10%	10,660	25%	1,062,435	17%	37,032	11%	1,099,467	16%
West North Central	18,035	12%	18,000	12%	1,500	4%	387,540	6%	37,535	11%	425,075	6%
South Atlantic	98,940	64%	74,540	50%	25,660	60%	2,406,119	38%	199,140	57%	2,605,259	39%
East South Central	1,570	1%	18,540	12%	700	2%	631,600	10%	20,810	6%	652,410	10%
West South Central	3,190	2%	19,640	13%	520	1%	614,569	10%	23,350	7%	637,919	10%
Mountain/Pacific	14,570	9%	4,340	3%	720	2%	321,499	5%	19,630	6%	341,129	5%
Total	**$154,228**		**$150,709**		**$42,960**		**$6,362,641**		**$347,897**		**$6,710,538**	

1. Includes $1,205,480,000 for projects for startup in 1989 and after ($1,057,000,000 production; $147,980,000 environmental).

States are assigned to regions as follows:
New England: Maine, Vt., N.H., Conn., R.I., Mass.
Mid-Atlantic: N.Y., N.J., Pa.
East North Central: Wis., Mich., Ill., Ind., Ohio
West North Central: N.Dak., S.Dak., Nebr., Kans, Minn., Iowa, Mo.
South Atlantic: Del., Md., W.Va., Va., N.C., S.C., Ga., Fla.
East South Central: Ky., Tenn., Miss., Ala.
West South Central: Okla., Texas, Ark., La.
Mountain/Pacific: Wash., Ore., Calif., Alaska, Idaho, Nev., Mont., Wyo., Utah, Ariz., Colo., N.Mex.

try is operating at only 79% of capacity. Tax reform will also hurt investment in 1987 by reducing investment incentives, McGraw-Hill said, particularly through the retroactive elimination of the investment tax credit to the beginning of 1986.

Despite the general pessimism, McGraw-Hill called the big decline in paper industry spending "clearly surprising" considering the recent indications of good profit and sales growth, as well as high capacity utilization. Contemplated capital budget cuts for 1987 could transform into increases early in the year, the report said.

Spending up again in Canada. The recovery in Canadian capital spending that began in 1984 appears to be continuing, according to the latest survey of investment intentions by Statistics Canada. Canadian paper and allied industries plan to spend a record C$2.16 billion on capital projects in 1986, an increase of 16.7% over 1985. Capital outlays rose 57.7% in 1985 to $1.85 billion, breaking the old record of $1.68 billion set in 1981. The biggest increase is in construction outlays, which were expected to jump 43.0% in 1986 to $262.6 million. Machinery expenses were forecast to rise 13.8% to $335.2 million.

The new spending plans are also up in comparison to the survey conducted by Statistics Canada last winter. At that time, 1986 spending was forecast to reach $2.12 billion in 1986, about 2.1% below the current estimate. Observers credit better prices for pulp and most paper grades, higher operating rates for newsprint, and the weak Canadian dollar for the improved cash flow picture that is pushing up capital spending in Canada.

ABOUT *P&P*'s ANNUAL SURVEY. Now in its twenty-third year, *P&P*'s annual capital spending survey covers expansion and modernization programs at U.S. and Canadian mills. Unlike surveys which track spending by year, the *P&P* survey covers spending by project. Dollar figures represent the total cost of reported projects and may sometimes include supporting equipment. The total cost of multi-year projects is assigned to the startup year and is not divided among the years of expenditure. Each survey primarily covers a three-year period, but projects with firm startup dates beyond that time frame are also included.

Complete results of P&P's exclusive survey of North American capital spending programs for 1985-87 are available in a separate Mill-by-Mill Listings report. Organized by company, the listings show programs for new mills and machines, rebuilds and modernizations, environmental quality control, and other mill improvements, with specifics on equipment ordered, dates, suppliers, and prices, where available. Subscribers to P&P's monthly newsletter, Project Report, receive a free copy of the report with their January issue. All others may obtain a copy of the report for US$105. To order, send payment to Pulp & Paper, Editorial Dept., 500 Howard St., San Francisco, Calif. 94105.

UNITED STATES

SPENDING FALLS OFF DUE TO ECONOMIC UNCERTAINTY, COMPLETION OF PROGRAMS

■ U.S. pulp and paper companies responding to *P&P*'s latest survey report plans to spend $6.71 billion on capital modernization and expansion projects for the 1986-88 period. That figure is down a sharp 18.8% from the total reported last year, reflecting the completion of several major programs in 1985 and the absence of major new projects to take their place in 1987 and later years. For example, 15 of the 44 largest expansion/modernization projects listed last year were completed in 1985, and only seven new projects of similar size were announced in 1986. In general, papermakers have been more cautious about committing to large new expansion or modernization projects, reflecting concern about the economy and the effects of tax reform.

Production-related spending shows a drop of 18.1% to $6.36 billion for the 1986-88 period, while papermakers report plans to spend $347.9 million on environmental projects, down 5.7% from last year. Production spending accounts for 95% of total reported outlays, compared with 96% in last year's survey. Environmental spending dropped over 22% in last year's survey and has fallen every year since 1982. For 1986-88, outlays for pollution

TOP SPENDERS IN U.S.

Companies which have reported capital spending plans of $100,000,000 or more, including both production and environmental programs

	1986-88	1985-87
Fort Howard Paper[1]	$900,000,000	$800,000,000
Pentair Industries[1]	637,500,000	725,000,000
International Paper[2]	585,895,000	1,295,770,000
Bowater	473,350,000	500,850,000
Champion International	389,100,000	1,047,007,000
Scott Paper	331,000,000	617,000,000
Consolidated Papers	271,900,000	311,200,000
Georgia-Pacific	270,000,000	380,000,000
Federal Paper Board	266,000,000	91,250,000
James River[1]	240,000,000	177,500,000
Great Northern Nekoosa[1]	232,880,000	231,628,000
Manistique Papers	183,000,000	183,000,000
Westvaco	180,000,000	180,000,000
Potlatch	178,000,000	142,041,000
Stone Container	150,141,000	117,750,000
Union Camp	131,000,000	165,000,000
Mead	107,000,000	139,000,000
Jefferson Smurfit	102,750,000	102,550,000

1. Includes programs for completion beyond three-year period indicated.
2. Includes Hammermill Paper Co. spending of $342.2 million in 1986-88 and $408.8 million in 1985-87.

MAJOR MODERNIZATION/ EXPANSION PROJECTS IN U.S.

(over $50,000,000 at an existing mill site)

	1986-88
Bowater Carolina, Catawba, S.C.	$363,000,000[1]
Bowater/Catawba, Catawba, S.C.	64,350,000
Champion International, Canton, N.C.	72,000,000
Champion International, Lufkin, Texas	82,300,000
Champion International, Pensacola, Fla.	200,000,000
Chesapeake, West Point, Va.	56,000,000
Consolidated/Biron, Wisconsin Rapids, Wis.	215,000,000[1]
Erving Paper Mills, Erving, Mass.	55,000,000[2]
Federal Paper Board, Augusta, Ga.	150,000,000
Federal Paper Board, Sprague, Conn.	100,000,000
Georgia-Pacific, Zachary, La.	200,000,000[1]
GN Nekoosa, East Millinocket, Maine	156,100,000
Hammermill Paper, Selma, Ala.	253,000,000[1]
International Paper, Selma, Ala.	250,000,000[1]
James River, Pennington, Ala.	120,000,000[1]
Longview Fibre, Longview, Wash.	99,000,000
Manistique Papers, Manistique, Mich.	183,000,000
Mead, Escanaba, Mich.	51,000,000
Packaging Corp. of America, Counce, Tenn.	60,000,000
Pentair/NOW, Niagara, Wis.	101,000,000[2]
Pentair/Port Huron, Port Huron, Mich.	88,000,000[2]
Potlatch, Cloquet, Minn.	n.a.[1]
Potlatch, Lewiston, Idaho	103,000,000
Scott Paper, Chester, Pa.	115,000,000
Scott Paper, , Skowhegan, Maine	216,000,000[1]
Jefferson Smurfit, Jacksonville, Fla.	54,100,000
Southwest Forest, Panama City, Fla.	65,000,000
Stone Container, Florence, S.C.	104,010,000
Union Camp, Franklin, Va.	131,000,000
Westvaco, Covington, Va.	180,000,000[1]
Willamette, Hawesville, Ky.	n.a.
Willamette, Campti, La.	n.a.
Willamette, Albany, Ore.	n.a.

1. Includes new paper machine.
2. Includes programs for completion in 1989 and later.

U.S. GREENFIELD MILL PROJECTS

UNDER CONSTRUCTION OR STARTED UP IN 1986 — **Startup**

Pentair/Great Lakes, Duluth, Minn. — **1988**
235,000-tpy clay-filled supercalendered groundwood*

Fort Howard Paper, Rincon, Ga. — **1992**
1,500-tpd recycled tissue mill with four machines*

UNDER ACTIVE CONSIDERATION (NO STARTUP DATE)

Augusta Kraft, Augusta, Ga.
Proposed 262,500-tpy kraft linerboard mill; on hold

Unspecified, Richmond, Calif.
175,000-tpy recycled newsprint mill under study; decision expected soon

Great Lakes Forest Products, Usk, Wash.
154,000-metric tpy TMP/newsprint mill*; postponed until market conditions improve

Kenaf International, southern Texas
Proposed kenaf newsprint mill under study

Mississippi Chemical Corp., Northeast Mississippi
Newsprint mill under study

*Paper machine also included in New Machine table.

have spent heavily to improve product quality, cut costs, and raise capacity. Last year, this category accounted for 17% of overall spending, up from 13% in 1985, 11% in 1984, and only 6% in 1983.

NEW MILLS AND MACHINES. At 26.8% of the total, new paper machines will consume the largest percentage of capital funds for the 1986-88 period, up from 22.5% in last year's survey. Spending for new paper machine installations dropped a relatively slight 2.9% in the current survey to $1.81 billion. However, most of the new machines included in the survey were started up in 1986, and spending in this category should drop significantly after this year. Nine major new paper machines came online in 1986, the most additions since the boom years of 1980 and 1981. In contrast, only four such machines were started up in 1985, and only two are scheduled for completion in 1987.

Seven of the new paper machines started up last year were in the printing and writing grades, with two each in lightweight coated groundwood and uncoated free-sheet, one in coated free-sheet, and one in cotton fiber (see table for details). Also completed were a new bleached paperboard machine and a new tissue unit. Spending for all nine installations is estimated at $1.19 billion.

Less spending for capacity growth? The dropoff in new paper machine projects after 1986 is reflected in the latest forecast for capacity additions. U.S. paper and paperboard capacity will grow only 1.8% annually from 1987 to 1989, whereas growth has averaged about 2.1% over the past ten years, according to the API. About 42% of the new capacity is expected online this year, most of it in the printing and writing area.

Only two new paper machines are currently scheduled for completion in 1987, both tissue units. Georgia-Pacific will install a new 210-in.-trim Beloit tissue unit at its Palatka, Fla., mill, and Fort Howard Paper Co. will start up the first of four tissue machines this year at its greenfield recycled tissue mill in Rincon, Ga. No. 16 machine will have capacity for about 250 tpd. Fort Howard plans to install three more machines at the $900-million facility by 1992, bringing capacity up to about 1,500 tpd.

In 1988, Lake Superior Pulp & Paper Inc. will bring online its new supercalendered groundwood paper mill at Duluth, Minn., and Potlatch Corp. will complete installation of a new coated free-sheet unit at its Cloquet, Minn., facility. Voith is supplying both machines.

Other projects waiting in the wings. Depending on market conditions, a number of proposals for new paper machines and paper mills are poised to move forward quickly—particularly in the newsprint field. Great Lakes Forest Products Ltd. is waiting for conditions to improve before proceeding with a new newsprint mill in Usk, Wash., and a decision by an unnamed paper company on a new recycled newsprint mill in Richmond, Calif., is expected soon. Possible newsprint installations

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NEW PAPER MACHINES IN U.S.

UNDER CONSTRUCTION OR STARTED UP IN 1986 — **Startup**

Bowater Carolina, Catawba, S.C. — 1986
197,000-tpy, 336-in. No. 2 Beloit—LWC

Consolidated/Biron, Wisconsin Rapids, Wis. — 1986
180,000-tpy, 288-in.-trim Voith—LWC

Georgia-Pacific, Zachary, La. — 1986
230,000-tpy, 378-in. Valmet—uncoated free-sheet

Hammermill Paper, Selma, Ala. — 1986
185,000-tpy, 350-in.-trim Voith—uncoated free-sheet

International Paper, Pine Bluff, Ark. — 1986
200,000-tpy coated groundwood

James River, Pennington, Ala. — 1986
70,000-tpy, 260-in. Beloit—tissue

Kimberly-Clark, Whiting, Wis. — 1986
90-tpd Sulzer Escher Wyss—cotton fiber

Scott/S.D. Warren, Skowhegan, Maine — 1986
290-in.-trim, 215,000-tpy Beloit—coated free-sheet

Westvaco, Covington, Va. — 1986
278-in.-trim, 175,000-tpy Voith—bleached paperboard

Fort Howard Paper, Rincon, Ga. — 1987
250-tpd tissue machine

Georgia-Pacific, Palatka, Fla. — 1987
210-in.-trim No. 5 Beloit—tissue

Linweave Fine Papers, Holyoke, Mass. — 1987
25,000-tpy fine paper

Pentair/Great Lakes, Duluth, Minn. — 1988
235,000-tpy, 285-in.-trim Voith—SC groundwood

ANNOUNCED, WITH STARTUP DATE

Potlatch, Cloquet, Minn. — 1988
194-in.-trim Voith—coated free-sheet

Fort Howard Paper, Rincon, Ga. — 1988-92
Three tissue machines (1988, 1990, 1992)

PROPOSED (NO STARTUP DATE)

Great Northern Nekoosa, Ashdown, Ark.
210,000-tpy No. 64 uncoated free-sheet machine under study

Bear Island Paper, Ashland, Va.
Alternate site for proposed Soucy Inc. newsprint machine

Blandin Paper, Grand Rapids, Minn.
204,000-tpy, 280-in.-trim LWC; postponed from 1988 target

Champion International, Quinnesec, Mich.
Coated free-sheet machine under study

Chesapeake, Menasha, Wis.
No. 4 tissue machine was under study; no recent activity

Federal Paper Board, Augusta, Ga.
Final stage of expansion to include new machine—bleached board

International Paper, undetermined
150,000-tpy coated free-sheet machine

James River, unspecified
Studying new tissue machine installation

Midtec Paper, Kimberly, Wis.
Studying one machine to replace four—coated free-sheet

Owens-Illinois, Tomahawk, Wis.
Replacement corrugating medium machine under study

Southeast Paper Manufacturing, Dubling, Ga.
Proposed 450-tpd recycled newsprint machine

Tagsons Papers, Mechanicville, N.Y.
Tissue expansion proposal may include new machine

Union Camp, Eastover, S.C.
Considering second free-sheet machine

Westvaco, unspecified
New paper machine reportedly under study

are also under study in Mississippi and Texas.

Another area of potential major activity is coated free-sheet. New paper machines are under consideration for Champion International's Quinnesec, Mich., mill and Midtec Paper Corp.'s Kimberly, Wis., facility. Westvaco Corp. has announced plans to boost its coated free-sheet capacity as well, although details have not been released.

CANADA

IMPROVED SALES AND EARNINGS WILL HELP FUEL NEEDED CAPITAL IMPROVEMENTS

■ The capital spending picture continues to brighten in the Canadian pulp and paper industry, *P&P*'s survey shows. Total outlays of C$4.40 billion are reported for the 1986-88 period, an increase of 7.3% over last year's survey. Although many companies will continue to be hampered by high debt, capital spending should benefit from the rebound in profits in 1986 and prospects for good business conditions in 1987. Canadian companies have benefited from higher prices for pulp and most paper grades, better newsprint operating rates, and the relative weakness of the Canadian dollar.

Production-related spending totals $4.20 billion for the current three-year period, survey results show, a gain of 8.5% over last year's total. Environmental spending, however, drops 12.1% in the new survey to $205 million. Spending for air pollution abatement rose 23.7% in this year's survey, but the gain was more than offset by declines of 16.0% in water pollution controls and 60.5% for solid waste handling.

Spending by category. Fueled by the announcement of a number of new mechanical pulp installations, spending in the pulping area climbed 23.9% in this year's survey. Pulping improvements account for about 36.6% of overall spending, up from 32% last year. The emphasis on fiber supply also helped boost woodyard outlays to $153 million, up 38.3% from last year.

After falling 17% last year, reported spending for new paper machines is up 57.7% in this year's survey to $1.06 billion. Outlays for paper machine rebuilds, however, fell 17.5% this year after a 21% decline in last year's survey. Reported spending for machine rebuilds totals $756 million for the 1986-88 period, 17.1% of overall outlays. New paper machines account for 24.0% of total spending in this year's survey.

Planned spending for energy projects has been particularly erratic in recent surveys, rising one year only to plummet the next, and this year it will continue that pattern. Outlays for energy projects are reported at $269 million for the 1986-88 period, down 25.8% from last year's survey.

Capacity expansion picks up. Capital spending will get more of a boost from capacity growth in Canada than in the U.S., according to the Canadian Pulp & Paper Assn.'s most recent survey. Paper and paperboard capacity growth will average 2.34% a year through 1988, the CPPA reported, compared with a 1.31% annual rate between 1975 and 1985. The highest growth will come in the printing and writing grades, and the prospects are mixed for Canada's two most important commodities, newsprint and market kraft pulp. Newsprint growth will average 1.27% a year, slightly higher than the ten-year average of 0.9% a year. Bleached kraft market pulp capacity, on the other hand, will only grow at a 0.7% a year rate, well below its ten-year average of 1.78% a year.

Newsprint. The newsprint sector should contribute more to capital spending than its modest growth prospects suggest because retirement or conversion of old capacity is keeping growth down more than the lack of new capacity additions. Two new newsprint machines are included in the current survey period: CIP Inc.'s 155,000-metric-tpy machine at Gatineau, Que., and Donohue Inc.'s 180,000-tpy unit at Clermont, Que.

A number of mills are proceeding with programs to upgrade existing newsprint machines with twin-wire formers and to modernize pulping facilities. Consolidated-Bathurst Inc. is spending about $135 million to upgrade paper machines and add new TMP capacity at its Shawinigan and Ville de la Baie, Que., mills. Kruger Inc. has major improvement programs worth about $260 million under way at its Bromptonville, Que., and Corner Brook, Nfld., mills. Ontario Paper Inc. is spending about $200 million to modernize its Baie Comeau, Que., and

TOP SPENDERS IN CANADA

Companies which report capital spending plans of C$100,000,000 or more, including both production and environmental programs

	1986-88	1985-87
Domtar*	C$931,208,000	C$904,451,000
Repap Enterprises	330,000,000	280,000,000
Kruger*	258,600,000	328,600,000
Consolidated-Bathurst	238,900,000	253,300,000
Abitibi-Price	213,700,000	249,700,000
Ontario Paper	208,600,000	237,800,000
E.B. Eddy Forest Products*	205,526,000	130,383,000
Weyerhaeuser Canada*	202,500,000	n.a.
Western Pulp	185,000,000	145,900,000
Millar Western Pulp	185,000,000	—
Fibreco Export	170,000,000	—
Donohue	170,000,000	256,181,000
CIP	128,200,000	149,300,000
Tembec	103,000,000	118,500,000

*Includes programs for completion beyond three-year period indicated.

Thorold, Ont., mills. Crown Forest Industries Ltd. recently approved improvements worth about $65 million at its Elk Falls, B.C., mill, and Domtar Inc. will install a new $80-million CTMP mill at its Dolbeau, Que., mill.

In addition to these scheduled projects, a number of companies are prepared to move ahead with newsprint expansions if market conditions continue to improve. In eastern Canada, Bato Inc. announced recently that it was considering a new 200,000-tpy, $230-million newsprint machine for its F.F. Soucy Inc. mill at Rivière-du-Loup, Que. Bato says that the new machine is contingent on financial aid from the government, however—which could kill the project, since the federal government's policy is to refuse grants for capacity-expanding projects. Newspaper publisher Quebecor Inc. has proposed a new 180,000-tpy newsprint mill for the Matane region of Quebec, but the government appears to favor another project for the site.

Also in eastern Canada, Abitibi-Price Inc. has long-range plans for another newsprint machine at its Iroquois Falls, Que., mill. And in the western area, Finlay Forest Industries Ltd. has begun a feasibility study for a new newsprint machine at its 450-tpd bleached refiner-mechanical pulp mill at Mackenzie, B.C.

Fastest growth in printing/writing. Quebecor's Matane mill venture appears to have lost out to a proposal by Norwegian forest products company Saugbrugs for a $377-million, 180,000-tpy supercalendered groundwood paper mill in the region. The joint Saugbrugs/Rexfor mill has reportedly been held up by problems getting financing assistance from Ottawa, however.

Canada's hottest segment for capacity growth is printing and writing papers. Groundwood printing and spe-

MAJOR MODERNIZATION/ EXPANSION PROJECTS IN CANADA

(over C$50,000,000 at an existing mill site) 1986-88

Abitibi-Price, Jonquiere, Que.	C$110,000,000
Cascades, Port Cartier, Que.	85,000,000
CIP, Gatineau, Que.	70,700,000[1]
Consolidated-Bathurst, Shawinigan, Que.	84,000,000
Con-Bathurst, Ville de la Baie, Que.	50,700,000
Crown Forest Industries, Elk Falls, B.C.	65,000,000
Domtar, Dolbeau, Que.	82,925,000
Domtar, Windsor, Que.	754,000,000[1,2]
Donohue, Clermont, Que.	170,000,000[1]
E.B. Eddy Forest Products, Espanola, Ont.	167,617,000[2]
James River-Marathon, Marathon, Ont.	56,835,000[2]
Kruger, Bromptonville, Que.	58,600,000
Kruger, Corner Brook, Nfld.	200,000,000[2]
Ontario Paper, Baie Comeau, Que.	136,000,000
Ontario Paper, Thorold, Ont.	72,600,000
Repap, Newcastle, N.B.	280,000,000[1]
Tembec, Temiscaming, Que.	103,000,000
Western Pulp, Squamish, B.C.	176,000,000
Weyerhaeuser Canada, Prince Albert, Sask.	202,500,000[1,2]

1. Includes new paper machine.
2. Includes programs for completion in 1989 and later.

CANADA—REPORTED CAPITAL EXPENDITURES FOR 1986-88+ BY REGION AND TYPE OF FACILITY (C$000)

PRODUCTION-RELATED EXPENDITURES

	WOOD/FIBER		PULPING		NEW MACHINES		MACHINE MOD.		ENERGY		MISC./PLANT	
Maritimes	$ 29,915	20%	$ 126,411	8%	$220,000	21%	$116,070	15%	$48,485	18%	$33,296	7%
Quebec	15,600	10%	832,885	52%	614,000	58%	314,641	42%	73,550	27%	122,916	27%
Ontario	46,400	30%	176,886	11%	28,000	3%	279,629	37%	35,855	13%	143,941	32%
Central	60,390	40%	468,905	29%	—	0%	43,121	6%	111,000	41%	48,311	10%
West	600	0%	5,400	0%	197,500	19%	2,400	0%	—	0%	—	0%
Total	**$122,905**		**$1,612,487**		**$1,059,500**		**$755,861**		**$268,890**		**$457,103**	

ENVIRONMENTAL QUALITY SPENDING

	WATER		AIR		SOLID WASTE		TOTALS PRODUCTION		TOTALS ENVIRONMENTAL		TOTALS GRAND TOTAL	
Maritimes	$ 8,230	9%	$ 17,550	17%	$ 1,690	12%	$ 574,179	14%	$ 25,220	12%	$ 599,399	14%
Quebec	37,420	39%	36,800	37%	8,513	58%	2,973,592	47%	78,183	38%	2,051,775	47%
Ontario	6,754	7%	634	1%	1,553	11%	712,711	17%	8,941	4%	721,652	16%
Central	43,650	45%	45,715	45%	2,830	19%	729,727	17%	92,195	45%	821,922	19%
West	—	0%	—	0%	—	0%	205,900	5%	—	0%	205,900	5%
Total	**$96,054**		**$ 100,699**		**$ 14,586**		**$4,196,109**		**$204,539**		**$4,400,648**	

1. Includes C$1,345,314,000 for projects for startup in 1989 and after ($1,295,714,000 production; $49,600,000 environmental).
Provinces are assigned to regions as follows: Maritimes: New Brunswick, Newfoundland, Nova Scotia; Central: Manitoba, Saskatchewan; West: British Columbia, Alberta.

cialty papers will jump 28% by 1988, mostly on the strength of conversions from newsprint to other grades. The largest of these still pending is Abitibi-Price Inc.'s $110-million supercalendered groundwood project at Jonquiere, Que. The Saugbrugs proposal, along with a new machine under study by Consolidated-Bathurst Inc. for its Grand Mere, Que., mill, were not included.

Book and writing paper capacity will grow 33% by 1988. Repap Enterprises Inc. completed its 200,000-tpy lightweight coated groundwood mill at Newcastle, N.B., this year for $280 million. Domtar Inc. is proceeding with its $754-million modernization at Windsor, Que., which includes a 175,000-tpy uncoated free-sheet machine for startup in 1987 and a similar unit for 1989.

Looking beyond 1988, Weyerhaeuser Canada Ltd. will install a new 182,000-tpy uncoated free-sheet machine at its newly purchased Prince Albert, Sask., mill for startup in 1989. No progress has been observed recently with Makin Pulp & Paper Ltd.'s proposed 135,000-tpy groundwood paper mill at Britannia Beach, B.C.

Pulp expansions. Pulp capacity will climb at an annual rate of 1.4% through 1988, according to the CPPA—well above the 0.6% annual rate for the past ten years. Tembec Inc. completed a $103-million market chemithermomechanical pulp mill in 1986, and two new market bleached CTMP mills were announced in 1986 for startup in 1988. Millar Western Pulp Ltd. will build a $185-million, 177,500-tpy facility at Whitecourt, Alta., and Fibreco Export Inc. will build a $170-million, 180,000-tpy mill in interior British Columbia.

Only one new major chemical pulping project was announced in Canada this year: Repap's plan to boost capacity about 100,000 tpy in a $50-million modernization at its recently purchased Skeena mill in Prince Rupert, B.C. Another expansion plan is under study at Champion International Corp.'s Hinton, Alta., mill. If approved, the $300-million project would serve to double bleached kraft market pulp capacity to about 412,000 tpy. ■

REPORTED CANADIAN EXPENDITURES BY PROVINCE, 1986-88[1]

PROVINCE	PRODUCTION	ENVIRONMENTAL	TOTAL
Alberta	C$ 160,000	C$29,900	C$ 189,900
British Columbia	569,727	62,295	632,022
Manitoba	3,400	—	3,400
New Brunswick	303,500	5,000	308,500
Newfoundland	205,700	15,000	220,700
Nova Scotia	64,979	5,220	70,199
Ontario	712,711	8,941	721,652
Quebec	1,973,592	78,183	2,051,775
Saskatchewan	202,500	—	202,500
Unspecified	—	6,800	6,800
Total	**C$4,196,109**	**C$204,539**	**C$4,400,648**

1. Includes projects, as announced, to be completed in 1987 and later.

NEW PAPER MACHINES IN CANADA
(metric tons)

UNDER CONSTRUCTION OR STARTED UP IN 1986 — **Startup**

Domtar, Trenton, Ont. — 1986
99,000-tpy, 195-in. Black Clawson-corrugating medium

CIP, Gatineau, Que. — 1986
155,000-tpy, 256-in.-trim Voith—newsprint

Repap Enterprises, Newcastle, N.B. — 1986
200,000-tpy, 297-in.-trim Valmet-Dominion—LWC

Donohue, Clermont, Que. — 1987
180,000-tpy, 330-in.-trim Valmet-Dominion—newsprint

Domtar, Windsor, Que. — 1987
175,000-tpy, 330-in. Beloit—uncoated free-sheet

ANNOUNCED WITH STARTUP DATE

Domtar, Windsor, Que. — 1989
Second 175,000-tpy machine—uncoated free-sheet

Weyerhaeuser Canada, Prince Albert, Sask. — 1989
182,000-tpy, 315-in.—uncoated free-sheet

PROPOSED (NO STARTUP DATE)

Abitibi-Price, Iroquois Falls, Ont.
Proposed newsprint machine; timing not decided

Consolidated-Bathurst, Bathurst, N.B.
180,000-tpy machine under study—SC groundwood

Finlay Forest Industries, Mackenzie, B.C.
Studying feasibility of adding newsprint machine

Soucy Inc. et Assoc., Riviere du Loup, Que.
200,000-tpy machine under consideration—newsprint

St. Mary's Paper Inc., Sault Ste. Marie, Ont.
Proposed 156,000-tpy No. 5 SC groundwood; postponed

GREENFIELD MILLS—CANADA
(metric tons)

UNDER CONSTRUCTION OR STARTED UP IN 1986 — **Startup**

Repap Enterprises, Newcastle, N.B. — 1986
200,000-tpy LWC mill; pulp supplied from nearby Nelson-Miramichi and Newcastle pulp mills*

Tembec, Temiscaming, Que. — 1986
100,000-tpy, single-line market bleached CTMP mill

ANNOUNCED WITH STARTUP DATE

Fibreco Export, Interior B.C. — 1988
180,000-tpy, two-line market bleached CTMP mill

Millar Western Pulp, Whitecourt, Alta. — 1988
177,500-tpy, two-line market bleached CTMP mill

PROPOSED (NO STARTUP DATE)

Dong Bang Chemical Co., Ocean Falls, B.C.
Studying 82,500-tpy neutral sulfite anthraquinone market pulp mill for old newsprint mill site

Makin Pulp & Paper, Britannia Beach, B.C.
135,000-tpy, two-machine groundwood paper mill; project currently seeking financing

Quebecor, Matane, Que.
Proposed 180,000-tpy newsprint mill

Saugbrugsforeningen, Matane, Que.
Proposed 200,000-tpy supercalendered groundwood mill

*Paper machine included in New Machine table.

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